

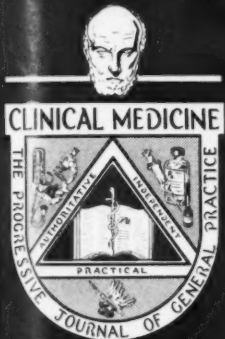
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# CLINICAL MEDICINE

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MARCH  
1941

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VOLUME 48

NUMBER 3

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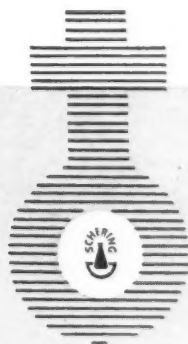
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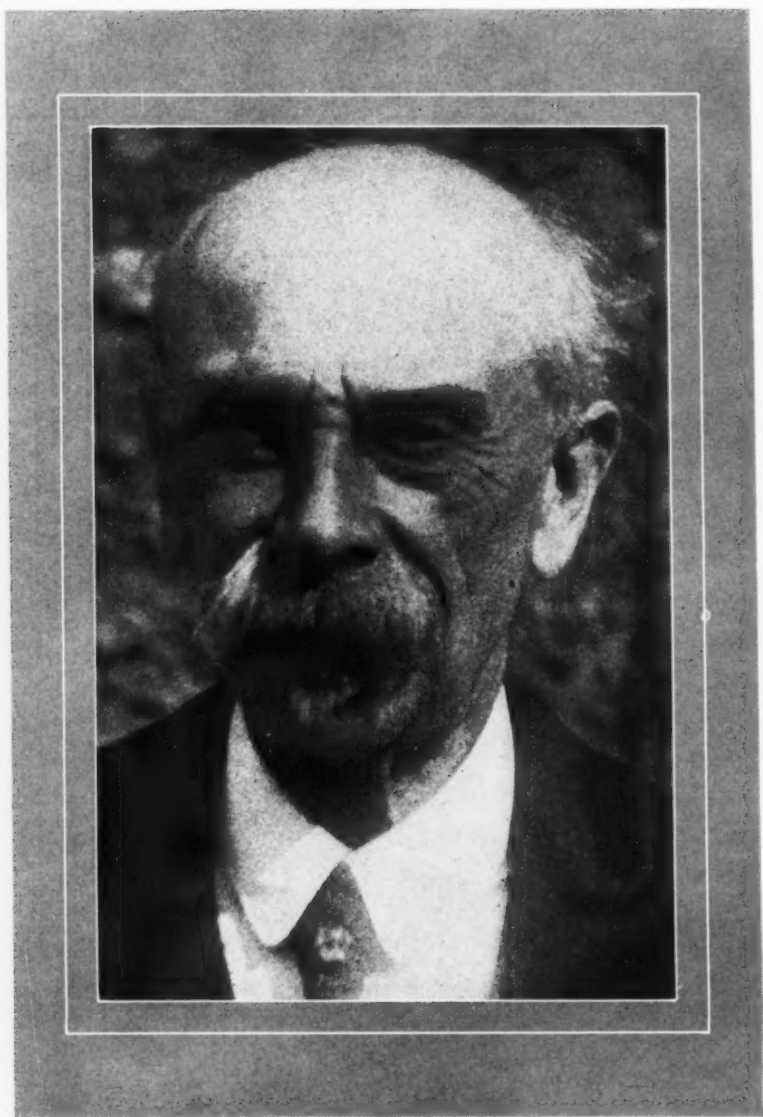
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## ★ Editorial ★

### d'Arsonval

#### Father of Diathermy

MANY of the advances in clinical practice have been made by men who were studying more or less abstract scientific problems. Among these was the discovery, by the late Dr. d'Arsonval, of the therapeutic effects of short-wave, high-frequency currents, which Nagelschmidt called "diathermy."

Arsène d'Arsonval was born June 8, 1851, in La Borie, Haute-Vienne, France.

As a student, his interest was, primarily, in the study of physics, and especially in the practical application of this science to living beings and to medicine.

He went to Paris to pursue his studies and became the assistant of Claude Bernard, who was then director of the laboratory of biologic physics in the College of France, and later worked with Brown-Séquard, after whose death d'Arsonval became professor.

In 1880, d'Arsonval came up for his doctorate, his thesis being, "Theoretic and Experimental Researches on the Rôle of Pulmonary Elasticity."

He was appointed a member of the congress of electricians and of the jury for awarding prizes at the International Electrical Exposition, in 1881.

The laboratory of physical biology of the College of France was established for d'Arsonval in 1882, and the same year he received the Monthyon prize for his remarkable researches in the heat equivalents of living organisms, for which he had to invent several new and ingenious pieces of apparatus.

That year was also made notable for him by the facts that he was appointed to give the course in experimental medicine and was made a member of the Legion of Honor.

In 1894 he became a member of the Institute of France, in the section for medicine.

d'Arsonval's contributions to practical bio-physics were considerable and important. The invention of a number of pieces of delicate apparatus is to be placed to his credit, notably the galvanometer which bears his name and which, in a modified form, is now used in our electrocardiographs. He also devised a magneto-electro telephone and a new type of voltaic battery which opened a new field to chemists who were studying the production and economic uses of the thermopile.

He wrote many learned papers, from 1875 on, which were published in the *Comptes Rendus de l'Académie des Sciences*, dealing with the physiology of heat and electricity, but his works have never been collected and little if anything has been translated into English.

d'Arsonval will probably be best and longest remembered for his work with high-frequency currents and their therapeutic applications. He was the first to construct practicable apparatus for producing these currents and to demonstrate that, when they were passed through living bodies, there was a point where neuromuscular reactions ceased and heat began to be produced in the tissues.

He continued his studies and labors, caring nothing for fame and remaining, to most American physicians, a semi-mythical personage, until a few years before his passing, in December, 1940, in the ninetieth year of his age.

While the name, applied in general to internal heat generated by electricity (diathermy), was coined by Franz Nagelschmidt, d'Arsonval's name is still attached to one of the types of current produced by the modern high-frequency machines, and is thus known to every physical therapist in the United States, and we should never forget, in the rush of present-day developments, who it was that made much of our progress possible.

To profit by "accidents," which common men neglect, is the true secret of success.—*The Family Library* (1830).

### Predecessors of Semmelweis\*

Most physicians, if asked who it was that first discovered the contagiousness of puerperal sepsis, or "childbed fever," would mention the name of Ignatz Semmelweis, the Hungarian obstetrician, whose treatise on the subject was published in 1847. A much smaller number would remember that the essay of Dr. Oliver Wendell Holmes, of Harvard, antedated that of Semmelweis by five years. Almost none would think of Charles White, Alexander Gordon, George H. Weatherhead, Thomas Alcock, or Robert Collins, if they had ever heard their names before. And yet all of these men had made this discovery, wholly or in part, from ten to seventy-five years before the conclusions of Semmelweis were made public, and had set forth their detailed observations in books which can still be read by those who have the enthusiasm to seek for them.

As a matter of fact, William Harvey, early in the seventeenth century, laid the foundation for this discovery when he stated, in so many words, that the separation of the placenta causes a "surgical wound."

Late in the eighteenth century (his book was published in 1773) Dr. Charles White, a pupil of John (not William) Hunter, had gone so far in his observations and meditations on "childbed fever," that he had every room in which he was to deliver a woman divested of all curtains and hangings, and the floor, walls, ceiling, and woodwork washed with soap and water; ordered the bed to be furnished with clean sheets; and devised a special bed and chair in which the patient could be placed in approximately the Fowler position.

In 1795, Dr. Alexander Gordon announced and defended his belief that "childbed fever" was communicated from one patient to another. Incidentally, there is evidence that Dr. Holmes was acquainted with Gordon's book.

\*The information upon which this editorial is based was obtained from a talk by Dr. Irving S. Cutter, of Northwestern University Medical School, given before the Medical Round Table of Chicago, November 12, 1940.

In 1819, Dr. George H. Weatherhead declared his belief that erysipelas, "erythema" (scarlet fever), "phlegmon" (septicemia), and "childbed fever" had an identical pathologic basis (remember that the science of bacteriology was still half a century in the future), and demonstrated that supuration in surgical wounds was astonishingly reduced if surgeons and attendants washed their hands with Labarraque's solution (practically identical with Dakin's solution, "discovered" a century later), the reputation of which as a cleanser depended on its power to reduce the foul odor of infected wounds, before and after handling every surgical patient.

Dr. Thomas Alcock studied the writings of Weatherhead, and in 1827 reported the application of his principles in obstetric cases, with highly gratifying results.

And then came Dr. Robert Collins, who demonstrated everything that Holmes and Semmelweis set forth, and more.

This talented and enthusiastic young man became assistant to the "Master" of the world-famous Rotunda Hospital in Dublin, in 1826, succeeded to the mastership in 1829, and so served until 1833. It was he who correlated, and applied, all of the knowledge regarding "childbed fever" which was then available, combining White's scrupulous cleanliness, in a more rigid form, with Weatherhead's use of the antiseptic, chlorinated lime.

At periodic intervals, the various wards in his hospital, in succession, were cleared of patients and of all impedimenta; the floors, walls, ceilings, woodwork, and all furniture were scrubbed with Labarraque's solution; the straw was emptied from the ticks on the beds and burned, and the ticks were soaked in this solution; a paste of chlorinated lime, two inches thick, was spread over the floor, and all windows and doors were tightly closed and kept so over night, so that the chlorine fumes could do their work; in the morning, no matter what the season, every aperture was opened wide and kept so all day, while the paste was removed from the floor and everything made habitable; when the beds were remade, only "stoved" (heated in an oven to a point just short of scorching) linen was used. Of course, all attendants washed their hands with Labarraque's solution before and after each examination of every patient.

The record of that hospital during the four years of Collins' mastership may well excite envy in the breasts of the authorities of our most modern lying-in hospitals. In that period, 10,785 women were delivered, and not one died of puerperal sepsis! The detailed records of all these matters were published in a book in 1836—six years before Holmes and eleven before Semmelweis.

In view of the fact that all of the books here mentioned have been more or less readily available to serious students ever since their publication, the fact that they are so little known is a rather appalling evidence of the prevalence of intellectual inertia among the members of the medical profession.



## State Medicine and Privileged Communications

IN DISCUSSING the disadvantages of State or Political Medicine, the loss of the intimate *personal* relationship between the physician and his patient has often been mentioned and elaborated upon, but the loss of the *confidential* relationship seems not to have been sufficiently stressed.

In arriving at a diagnosis and planning the treatment of a case, it is of the highest importance that the doctor should know *all* of the factors in the personal and family history, so that he can decide which ones may have a bearing upon the illness from which the patient presently suffers, *especially* those of a highly intimate and personal nature.

Even under existing conditions, many patients have a tendency to conceal the presence of epilepsy, dipsomania, serious psychic disorders, and even cancer in their family background, and of syphilis, gonorrhea, or (in an unmarried woman) pregnancy, in their own. But almost everyone knows that personal matters discussed with a physician, in his professional capacity, like those revealed to a priest in the confessional, are inviolably confidential, and are legally recognized as "privileged communications," in regard to which testimony cannot be forced in a court.

This being the case, the tactful physician does not find it unduly difficult to persuade a patient to unbosom himself fully, and such a "psychic purgation" not only makes the management of the case satisfactory, but frequently, *in itself*, is an important element in the cure of the existing disorder.

Under State Medicine, this confidential and privileged relationship would cease to exist, because the politicians who would have charge of the administration of all medical service would be empowered to demand of the physician any or *all* details of the condition of any or every patient undergoing medi-

cal treatment, whether such details were actually required for the adjustment of the case in question, or were merely desired to satisfy their personal curiosity.

Take a little time to think over this idea, in all its personal (for medical men fall ill and require treatment, the same as all other men and women) and professional bearings, and when you fully realize what a devastating effect the politicalization of medical service would have upon this aspect of your work, explain it earnestly to your patients and remind them that the only things they can do to minimize the danger of such a calamity is to *write to their congressmen*, stating their opinions on this important subject, briefly but in no uncertain terms, and to get behind the National Physicians' Committee with a cash contribution and encouraging words. *It is already later than most people can believe.*

Courage is still, as it has always been, a thing of great beauty that springs, whatever its form of expression, from an inner source of moral power.  
—HANS ZINSSER.

## Vaginal Hysterectomy

IN CONNECTION with the article by Dr. Rurik, of Chicago, in this issue, setting forth the advantages and disadvantages of vaginal hysterectomy, those of our readers who do their own surgery, and who keep their back files of "C.M." (as all of the really wise ones do), will do well to look up

the article by Dr. M. O. Robertson, of Bedford, Indiana, describing (with a number of technical illustrations) the *clamp method* for performing this operation, which appears to be the simplest procedure available and especially suitable for the occasional operator. It was published in the December, 1938, issue of this Journal, beginning on page 563.

Those who refer their operative cases to a surgeon might be wise to read it, also, along with Dr. Rurik's article, in order that they may discuss their cases of this sort intelligently with the men who are to do the actual work.

### NEXT MONTH

Dr. H. E. Billig, Jr., U. S. Navy Reserve, Hollywood, Calif., will set forth, with illustrations, some decidedly interesting ideas regarding the management of patients with low back pain and neuritis.

Dr. Theo. H. Maday, of Chicago, will show how and why a study of psychology is important and practical in the work of any active clinician.

Dr. C. G. Bain, of Centralia, Wash., will discuss the advantages of Andrews' operation for inguinal hernia, with details of technic and excellent illustrations.

### COMING SOON

"Difficulties in the Interpretation of Bone Roentgenograms," by Karl Goldhamer, M.D., and Harold Swanberg, M.D., F.A.C.P., Quincy Ill.

"Facial Deficiencies in Military Service," by H. I. Biegeleisen, M.D., New York City.



## The Use and Abuse of Spinal Anesthesia

By

PAUL E. CRAIG, M.D., Coffeyville, Kans.

Spinal anesthesia is one of the longest steps forward in surgery in this generation, but relatively few physicians fully understand its advantages and its dangers.

In this paper Dr. Craig has summed up all the necessary information along these lines in a compact and practical form.

**S**PINAL anesthesia has been alternately praised and condemned since 1899, when Tait and Caglieri performed the first operation in America (an osteotomy for osteomyelitis of the tibia) under this type of anesthesia. Cocaine was employed as the anesthetic agent, with complete analgesia and gratifying results.

During the interim between the turn of the century and the present time, there have been periodic revivals of enthusiasm for spinal anesthesia, followed promptly by numerous reports on its ill effects and sequelae. This was due, no doubt, to the widespread use of methods popularized by large clinics and medical centers and imitated by the occasional operator in smaller communities who, because of inexperience, used excessive barbotage, did not deposit the anesthetic within the spinal canal, gave a dose too large or too small, reserved the anesthetic for bad-risk cases only, or injured the ligamenta flava by repeated attempts to enter the subdural space.

The induction and conduction of a spinal anesthesia should never become a routine procedure, but should be administered discriminately, by a skilled and experienced anesthetist who is fully conversant with all the steps of the technic, and who is able to prevent, minimize, or treat the emergencies which may arise during the course of anesthesia.

The major objection to the use of spinal anesthesia has been the inability of the user to control the height of the anesthetic and deal effectively with the vasomotor paralysis which invariably attends the injection of any anesthetic drug into the spinal canal.

A prerequisite to the safe and satisfactory administration of a spinal anesthetic lies in a thorough understanding of the advantages and limitations of its use, the mechanism by which pain is abolished, the choice of the anesthetic drug, the technic involved in the induction and conduction of the anesthetic solution, stabilization of the blood pressure, and the recognition and treatment of complications.

### Advantages of Spinal Anesthesia

No other known method of anesthesia today will permit the use of such a minute dose of a drug, and

yet maintain complete and prolonged analgesia. The whole organism is not subjected to the dangers of general anesthesia, with resulting strain on the heart and lungs. The early symptoms of vasomotor and respiratory depression are transitory and, upon disappearance, leave the surgeon free to perform the operation under an ideal condition of complete muscular and visceral relaxation.

Injury to the intra-abdominal organs is negligible, because the intestines are contracted, facilitating easy manipulation; and when the patient is placed in the Trendelenburg position the gut gravitates cephalad, making the use of restraining pads unnecessary. Peristalsis is augmented and the expulsion of the flatus stimulated; speed in the performance of non-traumatic surgery is greatly favored; and postoperative morbidity and mortality, in both clean and septic cases, are materially reduced.

### Limitations

While spinal anesthesia is applicable to the average surgical risk, it has very definite contraindications:

1.—*Abnormally low blood pressure*, due to extreme shock or severe anemia following an acute hemorrhage. Since a spinal anesthetic lowers the blood pressure still further, it is necessary to overcome the hypotension, by the use of intravenous saline infusions or by blood transfusions, before the anesthesia is begun.

2.—*Cardiopathies*: Heart disease, not perfectly compensated, cannot tolerate a rapid fall in blood pressure. A low pulse pressure with a high diastolic reading denotes a poor cardiovascular reserve and labels the case a poor risk.

3.—*Extreme hypertension*.

4.—*A psychoneurosis*: Psychoneurotic patients, who may later attribute symptoms of backache, dizziness, or headache to the spinal anesthetic, and who may institute malpractice proceedings, should not receive it.

5.—*Active pulmonary tuberculosis, and pleural or pericardial effusions*: Lung disease decreases pulmonary ventilation, which is further decreased under spinal anesthesia.

6.—*Pott's disease, syphilis, generalized septicemia, and diseases of the meninges or spinal cord*.

7.—*Malformations of the spine*.

### Mechanism of Analgesia

Spinal anesthesia is the regional insensitiveness resulting from the temporary paralysis of certain spinal nerves, produced by an anesthetic solution which has been injected into the subarachnoid space.

The control of the anesthetic level is a real



problem and constitutes a major impediment to the standardization of technic. The autonomic system in man is more highly developed than that in the laboratory animal. The vasomotor center, according to physiologists, is located in the floor of the fourth ventricle of the brain, from which focus a constant stream of vasoconstrictive impulses is sent down the cord and out through the white rami communicantes. Here they emerge with the

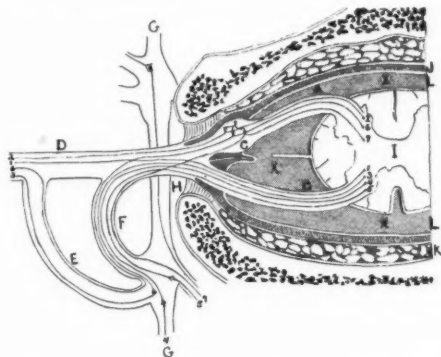


Fig. 1: Schematic transverse section through the spinal cord and spinal meninges showing the structure of a typical spinal nerve.

The anterior and posterior roots within the spinal canal, between the cord and the spinal ganglion, are bathed in cerebro-spinal fluid, X—X—X, containing a varying concentration of the anesthetic agent which becomes "fixed" in the nerve tissue, bringing about a temporary loss of sensation to pain, abolition of muscular control, and vasomotor paralysis.

- A. Posterior (sensory) nerve root
- B. Anterior (purely motor) nerve root
- C. Spinal ganglion with the cells of Dogiel
- D. Spinal nerve
- E. Gray ramus communicans
- F. White ramus communicans
- G. Sympathetic ganglion
- H. Sympathetic cord
- I. Spinal cord
- J. Subdural space
- K. Epidural space
- L. Subarachnoid space
- 1. Somatic efferent
- 2. Somatic afferent
- 3, 4, 5. Sympathetic efferent
- 6 & 7. Visceral afferent

anterior motor roots of the spinal nerves, from the first or second thoracic to the second or third lumbar, and flow downward to the corresponding ganglia of the sympathetic chain. The impulses then pass over postganglionic fibers to the blood vessels of the two great body cavities or back through the gray rami to the spinal nerves which follow as a pathway to the blood vessels of the rest of the body. The anesthetic solution interrupts the impulses passing over the white rami between the sympathetic chain and the spinal cord (see Fig. 1).

While the posterior or sensory roots are more susceptible to the anesthetic than the anterior or motor roots, both are affected, otherwise motor paralysis, as well as analgesia, would not be in evidence. Perforating the dura of the cord stimulates the production of acute traumatic shock, and the introduction of the anesthetic solution into the sub-arachnoid space produces a sudden vasodilatation, with a corresponding fall in blood pressure. This vasomotor paralysis always occurs and should be anticipated.

### Choice of the Anesthetic Agent

In past years, cocaine, stovaine, Alypin, tropacocaine, apothesine and tutocain have soared to heights of popularity, and have subsequently fallen into the discard. Cocaine, however, is still used satisfactorily by many surgeons in Mexico. At present Spinocaine, Novocain, Nupercaine, Metycaine, Neocaine, and pontocaine occupy a place of prominence.

#### I.—Criteria for the selection of the anesthetic drug.

- A.—It should possess a relatively low toxicity.
- B.—It should be readily soluble and easy to administer.
- C.—It should prove rapid and prolonged in its action.
- D.—It should, when dissolved in the cerebro-spinal fluid, approach the specific gravity of the solvent, making a change from the horizontal position unnecessary.
- E.—It should exert a selectivity for the sensory roots, with little disturbance of the motor side.
- F.—It should produce a minimal effect on blood pressure.

#### II.—Solutions: Spinal anesthetics may be grouped into three categories:

A.—*Hypobaric solutions*—those with a lighter specific gravity than cerebrospinal fluid, achieved by the addition of ethyl alcohol. The height to which the anesthetic rises is influenced by gravity and by the position of the patient on the operating table. When a light solution is employed, the Trendelenburg position should be assumed immediately after its administration. Examples: Babcock's and Pitkin's solutions.

B.—*Hyperbaric solutions*—those with a greater specific gravity than spinal fluid, made heavier by the addition of dextrose, starch, or salt. Here the patient should be placed in a modified Fowler's position after injection. Example: Barker's solution.

C.—Solutions which *dissolve in spinal fluid* and which, according to their individual specific gravities, are hypobaric, hyperbaric, or isobaric. Examples:

1.—*Spinocaine*, when mixed with cerebrospinal fluid, yields a hypobaric solution, making it imperative that the patient be placed immediately in the Trendelenburg position of varying degree, in order to confine the anesthetic to the desired level and to prevent the anesthetic solution from reaching the upper cervical segments and interrupting the function of the motor fibers of the phrenic nerves, with resultant diaphragmatic paralysis and a possible fatality.

2.—*Novocain crystals*, when dissolved in spinal fluid, have a slightly greater specific gravity, and the principle of the use of hyperbaric solutions must be followed. The table is kept level after injection. The head and shoulders of the patient may be elevated for from five to fifteen minutes, to prevent gravitation of the anesthetic cephalad.

3.—*Pontocaine crystals* (Niphanoid), when dissolved in cerebrospinal fluid, produce, for all practical purposes, a solution isobaric with the spinal fluid in which it is dissolved. (The normal specific gravity of the human spinal fluid fluctuates between 1.001 and 1.009). The patient may, after a lapse of from ten to fifteen minutes, be placed in any position, with safety.

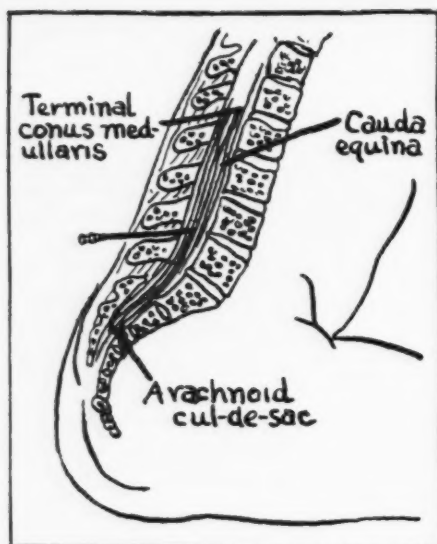


Fig. 2: Showing the anatomic relations of the lumbar spine, spinal cord, and cauda equina, and the usual site of puncture for spinal anesthesia (indicated by the inserted needle), between the fourth and fifth lumbar vertebrae (may be made between the third and fourth).

It is a distinct advantage for the surgeon-anesthetist to choose *one* suitable spinal anesthetic and, having familiarized himself with its physical properties and technic of administration, apply it in *all* his surgical procedures. In this manner he will come to master and, in a definite measure, standardize a heretofore uncontrollable method of anesthesia.

For short operations, requiring fifteen to thirty minutes, I prefer to use Novocain crystals which are dissolved in spinal fluid; but for operations of long duration (one to three hours) I use Pontocaine (Niphanoid), which has proved wholly satisfactory, because it is readily dissolved; is practically isobaric with cerebrospinal fluid (requiring no change in the position of the patient on the operating table); produces less motor paralysis, with a sustained sensory analgesia; and has a diminished effect on blood pressure.

**III.—Technic:** Among the factors to be considered in spinal anesthesia are gravity, volume, and diffusion of the anesthetic solution. Furthermore, the anesthetist must decide upon the type of anesthetic to be used, with a knowledge of its specific gravity and dosage. He also must determine the site of puncture, the amount of fluid to be withdrawn before injection, whether or not he wishes to use barbotage, and what position he wishes the patient to assume immediately following the injection.

#### A.—Type of anesthetic.

The dose of Novocain required for lower-abdominal work, amputations, and perineal and rectal operations, ranges from 50 to 125 mg.; for upper-abdominal surgery, from 150 to 200 mg. It is, however, rarely necessary to use the maximum dose.

The concentration of the anesthetic solution, at the level of the second or third lumbar verte-

bra, should be 4 percent; and below the fourth lumbar vertebra, 5 to 6 percent. A 5.48 percent solution of procaine hydrochloride is isotonic with spinal fluid (Harrison<sup>1</sup>). If the concentration in the subarachnoid is higher than 6 percent, there is positive danger of permanent damage to the spinal nerve roots or to the cord itself.

Pontocaine hydrochloride is ten times more potent than Novocain, and is supplied in 2 cc. ampules of a 1-percent solution, or in the form of the instantly-soluble Niphanoid, 20 mg. of crystals per ampule.

#### B.—Dosage.

The dose of the anesthetic drug varies with the patient's age, the height of the anesthetic required, the length of the operation to be undertaken, and the general condition of the patient. Infants between three months and one year should receive  $\frac{1}{4}$  of the adult dose; children up to three years of age,  $\frac{1}{3}$  of the adult dose; children from three to six years,  $\frac{1}{2}$  of the adult dose; in adults from sixteen years upward, the full adult dose is well tolerated.

Doses for Adults, in Mg. of Pontocaine

Location	A	B
Anus .....	5	10
Perineum .....	10	14
Legs, groin, and pelvis.....	10	14
Inguinal region .....	12	15
Lower abdomen (below umbilicus) ..	14	18
Upper abdomen .....	14	20

The dose should be governed by the age, the size, and the vigor of the individual patient. That shown under "A" should be reduced if the patient is especially small, delicate, extremely old, or weak; that shown under "B" should be increased if the patient is unusually robust or vigorous.

For higher anesthetics involving the upper abdomen, it is best to dilute the Pontocaine with equal parts of a 10-percent solution of dextrose if the patient is to remain horizontal, and with one-half as much dextrose as Pontocaine solution if the patient is to be placed in the Trendelenburg position. By this means the anesthetic is carried higher and its absorption prolonged.

#### C.—Site of puncture.

The spinal cord of the human adult extends to the lower border of the first lumbar vertebra, and a puncture at or above this level may result in cord injury. For short operations, the third or fourth lumbar interspaces are selected (see Fig. 2); and for longer procedures, the fourth or fifth, the length of the anesthesia depending on the size and concentration of the dose and the amount of fluid withdrawn and reinjected.

#### D.—The amount of fluid withdrawn.

The volumetric control of a spinal anesthetic is based on a knowledge of the capacity of the cerebrospinal system in its various horizontal planes. For example, at the level of the first sacral vertebra the capacity of the arachnoid is 2 cc. of spinal fluid; at the first lumbar, 4 cc.; at the ninth dorsal, 6 cc.; at the sixth dorsal, 8 cc.; at the sixth cervical, 16 cc.; and at the foramen magnum, 20 cc. Therefore, the amount of fluid

withdrawn and mixed with the anesthetic is from 4 to 6 cc., for operations below the diaphragm. The only variation in the extent of the anesthetic lies in the amount of the drug dissolved.

#### E.—Barbotage.

Forcible injection of the anesthetic solution is not advisable, for it may carry the anesthetic

should have a slip joint rather than a Luer-Lok, in order to prevent dislodgment when the syringe is attached or detached.

The patient, lying on his side, is caused to assume a jackknife position, flexing the knees on the abdomen and the chin on the chest. The interspinous spaces are thus widened and the interspinous ligaments are pulled taut. The desired interspace is palpated and the skin immediately overlying it is anesthetized with a 2-percent solution of Novocain (procaine).

The needle is thrust, in the midline, through the skin and resistant interspinous ligament until it reaches and perforates the dense and somewhat elastic dura and the underlying arachnoid. There is an unmistakable "give" in resistance when the dura is perforated. Upon removal of the obturator, spinal fluid drips from the needle.

Two (2) cc. of spinal fluid are withdrawn and mixed with 20 mg. of Pontocaine crystals, each 0.5 cc. representing 5 mg. of the anesthetic drug. If a 15 mg. dose is required, 0.5 cc. is expelled. The syringe is then attached to the needle and 4 cc. of spinal fluid are aspirated into the syringe containing the anesthetic solution. The whole is reinjected at the rate of 0.5 cc. per second.

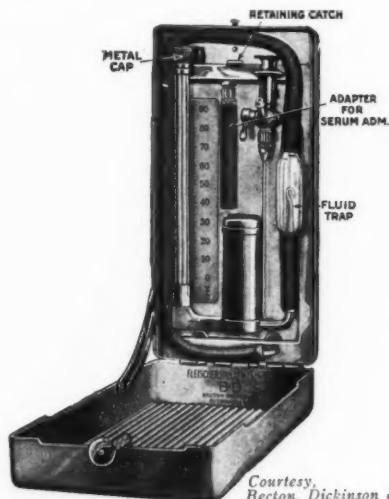
The patient is then placed on his back, at which time the spinal convexities are brought into play. As cephalad convection occurs, more and more anesthetic is removed from the solution by nerve tissue, until finally none remains free in the spinal fluid. The time required for complete fixation of the anesthetic is between ten and fifteen minutes, which time should be allowed to elapse before the operation is begun.

**IV.—Premedication:** It is extremely important, in preparing a patient for spinal anesthesia, not to use drugs which will depress or fatigue the medullary centers. Among those to be avoided are morphine, Avertin, Nembutal, Evipal, etc. Paraldehyde or scopolamine, however, may be used with relative safety. It has been my experience that large doses of depressing drugs, administered preoperatively, not only render the patient comatose and uncooperative, but lower the blood pressure to the extent of making the anesthetic dangerous to administer.

**V.—Blood Pressure.** Circulatory depression consequent to spinal anesthesia is largely the result of paralysis of the muscles of the thoracic cage, which exerts a diminished aspirating effect upon the blood stream. Weakening or paralyzing respiration interferes with the minute volume of the circulation of the blood in the coronary arteries and the oxygen tension therein. The sudden fall in blood pressure causes a feeble heart action, which interferes with an adequate delivery of blood to the medullary centers. Respiration, therefore, becomes feeble and a greater degree of anoxemia develops.

Since temporary vasomotor paralysis invariably follows the introduction of an anesthetic solution into the spinal canal, it is essential that some drug be given to counteract the sudden lowering of vascular tension. The selection of such a drug has been the subject of controversy.

The spinal fluid pressure, measured in cubic centimeters of water (see Fig. 3), corresponds to twice the minimal blood pressure, measured in millimeters of mercury. For example, the average minimal blood pressure is 70 mm. of mercury. It would, then, be equivalent to 7 centimeters of water, and the pressure of the cerebrospinal fluid thus calculated would be twice 7, or 14 cm. Following this line of reasoning, it would be logical to give



Courtesy,  
Becton, Dickinson & Co.

Fig. 3: Spinal Manometer.

higher than is intended, with imminent danger of respiratory paralysis. When we consider the agitating and diffusing action of the sinuses and veins in the human dura, which distend and collapse with each respiratory cycle, and the arterial loops within the arachnoid, which oscillate with each heart beat, we are led to believe that barbotage, on the part of the anesthetist, is an unnecessary step in technic for, given time, the anesthetic will be thoroughly dispersed and diffused. A proper rate of speed for injection of the anesthetic solution is 0.5 cc. per second.

#### F.—Position of the patient following injection.

This factor is entirely dependent on the specific gravity of the chosen anesthetic and whether it is isobaric, hypobaric, or hyperbaric. The easiest method is to use a solution approaching the specific gravity of spinal fluid, for it then requires no alteration in the position of the patient.

#### G.—Technic of puncture.

Many surgeons use the sitting posture except when a hypobaric solution is being injected. I prefer to have the patient lie on his side when making the spinal tap.

The site of injection is first thoroughly cleansed with ether and then painted with tincture of Merthiolate. Surgical asepsis, in every detail, must be rigidly enforced. A 20- or 21-gauge needle, with a sharp-beveled point, is chosen, because it produces less trauma and cuts a clean trap-door in the dura, which allows for the easy escape of spinal fluid. The needle

from 15 to 20 cc. of a 10-percent sodium chloride solution, intravenously, for spinal hypertension; and from 25 to 30 cc. of distilled water, by vein, for spinal hypotension. This would tend to stabilize the blood pressure.

The use of ephedrine in spinal anesthesia has been contested by some and supported by others. If large, frequent doses are administered, toxic reactions may become manifest, with symptoms of cardiac depression predominating. Chen and Meek<sup>1</sup> demonstrated experimentally that an overdose will paralyze the conduction bundles of the heart, with ultimate hopeless ventricular fibrillation and death. In my opinion, ephedrine should never be used routinely, because of possible idiosyncrasy in cardiopathic patients and asthmatics, and because it increases the pulse rate and the work of the heart.

Lorhan and Oliveri<sup>2</sup> used Neosynephrin hydrochloride in place of ephedrine, without producing the toxic phenomena common with the latter drug. They found it advantageous because it acts rapidly; improves the pulse rate, rhythm, quality, and volume; sustains the blood pressure; can be repeated often without signs of toxicity; eliminates nervousness; and was not attended by nausea or vomiting, in the majority of cases. If ephedrine is used, it should be given cautiously, in the amount of from 25 to 50 mg., from 15 to 20 minutes before beginning the anesthetic.

The average fall of blood pressure following a spinal anesthetic is from 40 to 50 points systolic (from 120 to 70 or 80). This is a physiologic reaction and can best be met by the intravenous injection of from 200 to 300 cc. of a 5-percent solution of dextrose, to which has been added 2 or 3 minims of a 1:1,000 solution of epinephrine. The venoclysis is begun as soon as the anesthetic is given, and is continued throughout the operation. The vasomotor palsy lasts about twenty to thirty minutes, or until the anesthetic is fixed in the nerve tissue.

**VI.—Recognition and treatment of complications:** Accidents and emergencies incidental to spinal anesthesia fall into two categories, depending on the time of their appearance. Morquecho<sup>4</sup> classifies them as follows:

**A.—Immediate accidents.**

1.—Psychic or mental, due to incorrect preanesthetic preparation.

2.—Complete lack of, or insufficient anesthesia, due to:

- a.—An altered product.
- b.—The wrong technic.
- c.—Bleeding into the subarachnoid space.
- d.—Walling off of the subarachnoid space.
- e.—The individual factor. (Sebrecht's)

3.—Digestive tract disturbances, such as nausea and vomiting due to:

- a.—The wrong psychic preparation.
- b.—A sudden fall in blood pressure.
- c.—Too-rough handling of the viscera.
- d.—Intoxication.

4.—Mixed cardio-respiratory accidents, such as respiratory angor or oppression with low blood pressure and bradycardia, which may go on to cardio-respiratory failure and cause death on the operating table. Its chief causes are:

- a.—Vagotonia.
- b.—Paralysis of a great number of intercostal muscles.
- c.—Too large a dose of the anesthetic drug.
- d.—Leaving the patient too long in a sitting

position after injection of the drug (if a light solution is used).

e.—Too-rapid rising of the anesthetic after short operations.

f.—Cardiac, renal, or pleural diseases.

5.—Disturbances of the nervous system.

a.—Sensitive disturbances, such as hyperesthesia.

b.—Sensorial disturbances, such as transitory amaurosis.

c.—Sphincteric troubles, especially anal incontinence and urinary retention.

d.—Immediate headache due to drug intolerance.

**B.—Late accidents.**

1.—Headaches and meningismus, which may be due to:

- a.—Incorrect technic.
- b.—Neuropathic constitution.
- c.—Spinal fluid hypertension due to meningeal irritation.
- d.—Spinal fluid hypotension due to loss of fluid during tapping or leakage following puncture, because too large a needle had been used.

2.—Nervous disturbances.

a.—Self-limiting paralytic phenomena which soon disappear and which are considered due to meningeal irritation. (Example: Bladder paralysis and ocular palsies).

b.—Paresis of the lower extremities, more or less prolonged but which never proves permanent and which is directly traceable to incorrect technic.

c.—Painful disturbances, such as backache, sciatica, etc.

3.—Renal disturbances, especially slight or transient albuminuria.

4.—Infectious complications due to unsterile technic or blood-borne infection.

The treatment of the complications enumerated lies largely in their prevention. It is absolutely necessary for the surgeon-anesthetist to study the individual patient, determining whether or not he or she is a fit mental or physical subject for spinal anesthesia. The properties of the anesthetic drug must be completely understood. The dosage of the anesthetic solution and the desired height and length of the anesthesia must be accurately predetermined. Repeated attempts at puncture should be discouraged, for it may cause an extradural hemorrhage or nervous sequelae.

If, for any reason, the anesthesia is insufficient, supplemental gas or ether should be administered at once. It is far better to give too little than too much anesthetic intraspinally. Artificial respiration, the Trendelenburg position, intramuscular injections of 2 cc. of sulphuric ether or from 2 to 5 minims of a 1-percent solution of Neosynephrin, and the use of a carbon dioxide and oxygen mixture, constitute the armamentarium of treatment when respiratory paralysis and vasomotor collapse are imminent. Ephedrine is a tricky and potentially dangerous drug and great care should be exercised in its use.

**Conclusions**

1.—Spinal anesthesia has earned for itself a place of prominence in the field of abdominal surgery.

2.—Because it has been used indiscriminately and far too often without training or experience, "spinal block" has, in many localities, become the undeserving target of harsh rebuke by the medical

profession and actually a thing to be feared by the laity.

3.—While a spinal anesthetic is not controllable in the same sense of the word as are ether, gas, or chloroform, it is, nevertheless, a standard procedure. The exact dose of the anesthetic drug, the length of the operation to be performed, and the height of the anesthesia are factors to be carefully determined before the injection is given.

4.—Spinal anesthesia is admirably adapted to abdominal surgery, because it effects muscular and visceral relaxation unparalleled by any other anesthetic.

5.—Pontocaine hydrochloride is instantly soluble, isobaric in any position, has less effect on blood pressure, and gives a sustained anesthesia with a minimum of motor paralysis. It is an ideal anesthetic for long operations.

6.—A 1-percent solution of Neosynephrin is

preferred to Ephedrine, because it can be given repeatedly without cumulative effects or toxic reactions.

7.—The treatment of complications arising from spinal anesthesia lies in their prevention.

8.—Spinal anesthesia is as safe as its user.

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## A Modern Treatment of Constipation

By

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Almost all of the patients who consult physicians are more or less constipated, part or all of the time, and the use of cathartics is now considered a dubious procedure, so this report by Dr. Greene should interest all active clinicians.

IN view of the extraordinary progress in biochemistry during the past decade, gastroenterologists are faced with an urgent problem: that of revising some of their old conceptions and theories concerning dysfunctions of the digestive tract. To some extent, the gastroenterologist of today has to be much more of a biochemist than a morphologist.

In the light of recent work, even so common a condition as constipation should rather be regarded as a chemical syndrome than as a purely morphologic deviation. It should be considered as one of the first indications that the chemistry of digestion and assimilation is disturbed and that there may be some serious underlying factors affecting the metabolic processes of the intestinal mucosa, which should be promptly eliminated.

In this article, I am reporting 100 cases of constipation, treated by a new method, elaborated and experimentally confirmed in the department of physiologic chemistry, Teachers College, Columbia University, by Dr. Walter H. Eddy and his associates.

"Constipation, as a whole, is one of the most vexing problems in the realm of medicine," remarks Dr. S. Johnsen.<sup>1</sup> There is a complete lack of uniform agreement even in regard to classification. Two types of classification have been offered, on an organic and a functional basis. Buckstein describes various theories to explain the etiology of constipation. These are:

- 1.—*Deficient food intake*, resulting in disturbance of the coordination of the gastro-colic reflex.
- 2.—*Deficient water intake*.

3.—*Endocrine disturbance* (hypothyroidism is cited as an outstanding example).

4.—*Spasticity of the colon* (which may result from emotional disturbances, or irritation from hard fecal masses or an improper diet).

5.—*Theory of intestinal stasis*, defended by Keith, who believes that the cause of constipation is pathologic disturbance of the muscular nerve plexus of the bowel.

6.—*Stasis due to antiperistalsis*, as described by Boehm, or stasis limited to the transverse colon, or to the sigmoid and rectum.

7.—*Allergy as a cause of stasis* (specific hypersensitivity to definite types of food).

8.—*Stasis associated with systemic organic disease* (central nervous system lesions, anemias, cardiac diseases, etc.).

9.—*Intestinal bacteria* as possible cause of stasis (recently Yale university scientists, Rettger, Cowgill, and Weinstein, brought considerable evidence to support of this theory).

10.—*Vitamin deficiency* as a cause of stasis is receiving greater and more impressive confirmation in recent work, particularly in regard to the Vitamin B complex.

The multiplicity of factors participating in the process of digestion and assimilation suggests that constipation should be considered as a condition that is caused by more than one factor, and this view has found considerable support in the more recent investigations conducted by Eddy and his associates. According to these workers, "constipation is a multiple deficiency disease, and as such requires multiple therapy."

#### Constipation as a Multiple Deficiency Disease

In his recently published book on vitamin B<sub>1</sub>, Williams states, "The outstanding fact is that the metabolic processes concerned take place, not in individual organs as a whole, nor in specialized tissues, but in the cells themselves."<sup>2</sup>



Admitting that "the carbohydrate metabolism is fundamental to the entire metabolism," he gives considerable evidence to the effect that vitamin B<sub>1</sub> is essential to normal metabolic processes and that deficiency of this vitamin may affect the activity of the intestinal mucosa.

The work of Verzar and his associates, on the other hand, indicates that, in vitamin B<sub>1</sub> (riboflavin) deficiency, partial disability of the intestinal mucosa may be present.<sup>3</sup> This biochemical finding seems to be in full accord with the clinical observations in regard to the relationship existing between vitamin B complex deficiency and gastro-intestinal dysfunction.

Dystrophy of the large intestine was reported by Abderhalden,<sup>4</sup> and atony of the colon by Rowlands and Browning<sup>5</sup> in vitamin B deficiency, and intensive treatment with this vitamin seems to improve constipation considerably. Marks,<sup>6</sup> reporting case histories of 2,000 patients who have been receiving a generous supply of vitamin B complex, revealed that, in 88.8 percent, improvement was observed. Cowgill<sup>7</sup> has successfully treated atonic constipation and other forms of intestinal stases with vitamin B therapy.

It seems, however, that, in a number of cases, vitamin B therapy results only in a partial improvement of the condition. Analyzing the relation existing between the intestinal flora and constipation, Rettger and his associates<sup>8</sup> came to the conclusion that the absence or decrease of *Lactobacillus acidophilus* in the colon is a factor of prime importance in constipation, and that improvement corresponds with the increase in aciduric flora. This method of implantation seems to succeed as a therapeutic measure in 75 percent of simple cases of constipation, according to Rettger, particularly when, in addition to *L. acidophilus*, a considerable amount of lactose is given to the patients daily.

Intestinal stasis is frequently associated with symptoms of disease of the biliary system and, as Dr. Samuel Weiss pointed out some years ago, the subhepatic region deserves particular attention in chronic constipation.

Whether the biliary symptoms are the accompaniment of constipation or vice versa, the possibility should not be ruled out that any agent which alleviates the abnormal function of the gallbladder may react favorably on the bowel movement; and any influence which would alleviate the intestinal stasis may reflect in a positive way on the gallbladder disturbance. Many authors have reported the beneficial effect of bile salts in constipation complicated by vague symptoms of disease of the biliary system. (Rosenak and Roulstaadt)

Thus three major factors, among many others, seem to contribute to the condition commonly known as constipation: disturbance in the cellular metabolism of the intestinal mucosa due to vitamin deficiency; the bacterial flora of the colon; and dysfunction of subhepatic region.

The multiple therapy of constipation, advocated by Dr. Eddy, attempts to correct and control precisely these underlying causes of intestinal stasis.

#### Synergistic Therapy in Constipation

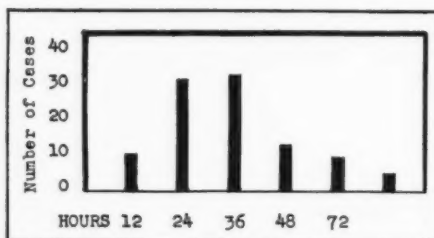
The physiologic premise of multiple therapy of constipation is based on the complicity of factors involved in this condition. Assuming that food lacking in essential elements is one of the causes initiating this condition, a large supply of vitamin B<sub>1</sub> (about 300 international units) and riboflavin (100 gamma) is prescribed daily. At the same time an attempt is made to change the colonic flora by increasing the aciduric type of bacteria.

Dr. Eddy and his co-workers came to the conclusion that there is no necessity for "implantation" of *Lactobacillus acidophilus* itself, and that a change in the flora may be accomplished by supplying the large intestine with media favorable to the multiplication of these bacteria. Since it has already been established that lactose and banana powder have a valuable therapeutic effect in this particular way, they have further increased the effectiveness of the lacto-banana mixture by a special, concentrated (powdered) form of polymolecular lactic acid, the therapeutic value of this form of lactic acid having been proved in an experimental as well as clinical way.

Paying attention to the subhepatic region, they suggested, in addition, a small dose of bile salts combined with agar-agar. Eddy's formula, which was first tested on animals, received its first clinical evidence in observations made by Fulmer, at the Home for Incurables (New York), on a number of patients who were chronically constipated. The results were satisfactory. This fact encouraged me to repeat this clinical study on a large number of patients in the gastro-intestinal clinic of the Flower Fifth Avenue Hospital.

One hundred (100) cases were selected for the clinical trial of this method. All individuals chosen had histories of constipation of long standing, and all had been using cathartics over a long period of time.

CHART I  
Time interval between ingestion of granules  
and first defecation



All patients were given the new preparation, which is in the form of carmel-coated granules,\* the dose being two teaspoonfuls twice daily, with two glasses of water. The patients were asked to discontinue all other forms of cathartics while on this medication. The interval from the time of ingestion of the granules to the appearance of a bowel movement was noted and recorded, and the results are shown in Chart I.

In 74 out of 100 cases in which results appeared within 36 hours, the patients received plain granules. The 24 patients in whom evacuation was delayed for 48 hours or more, were given granules of the type which is supplemented with a small amount of frangula.

#### Treatment with Plain Granules

The first 74 patients continued to take plain granules (2 drams twice daily) for two weeks, and had daily evacuations during that period;

\*This preparation consists (per dose) of 278 international units of vitamin B<sub>1</sub>, and 100 gamma of riboflavin (vitamin B<sub>2</sub>), together with lactobanana concentrate, Tri-lactic, calcium lactate, bile extract, and agar-agar with gum karaya. It is manufactured by the Professional Laboratories, Inc., Bloomfield, N. J., under the trade-name of "Tri-Costivin."



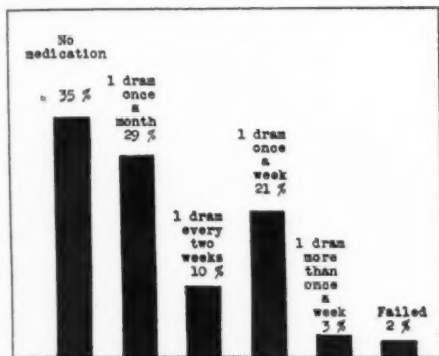
then the medication was reduced to 1 dram twice daily for one week (with daily evacuations); and then to 1 dram twice weekly.

After four months from the commencement of the treatment, the medication was discontinued entirely in 27 out of the 74 cases; 29 continued to use it on an average of once a month; 18 used the granules once a week, because they felt it was necessary in order to insure complete evacuations.

#### Treatment with Granules Supplemented with Frangula

The 24 cases in which evacuation was delayed beyond 48 hours, were given frangula-containing granules for 2 weeks (2 drams twice daily), and were then changed to plain granules (2 drams

CHART II  
Medication requirement after 4 months



twice daily) for 2 weeks, after which the plan of treatment was that with plain granules, as given above.

Of these 24 cases, 8 had daily evacuations, after a period of 4 months, without having to resort to cathartics; 10 continued to take the medication on an average of once every other week; 3 took it once a week; and another 3 patients resorted to the medication more than once a week, or took other cathartics.

In summarizing these results, we find that 35 cases out of the original 100 did not need any cathartics after four months' treatment; 29 took 1 dram at very infrequent intervals, averaging once a month; 10 felt the need of it about once every two weeks or so; and 21 took 1 dram once a week. Chart II presents these proportions graphically.

In more than 90 percent of the cases, a more facile movement was obtained, reducing the usual strain experienced by the patients. In about three-quarters of the cases, the time which had to be given to the actual act of defecation was considerably shortened.

The stool was increased in bulk in 91 cases, and the character of the stool was soft and well-formed in 94 of the cases, with a considerable lightening of the color.

Symptoms attributed to constipation were generally relieved. Flatulence was at first increased in 3 cases, but after 1 week it had decreased; 43 patients, who previously had complained of flatulence, were relieved of this complaint during the treatment.

#### Case Histories

Some of the histories of the cases treated are given below:

**Case 1:**—A single woman, age 32, had been constipated since early childhood. A tuberculous infection of the hips, at the age of 4, left her with ankylosis of both hip joints. She took cathartics every other day, and an enema every 2 weeks, but her bowel movements were incomplete, and the feces hard. There was a great deal of straining while at stool, and occasional bleeding.

She was given the granular medication (plain), 2 drams twice a day, and the first movement appeared 72 hours after its first ingestion. She was then given granules with frangula, and began to have daily evacuations. The dose was then reduced to 1 dram once a day, with equally good results. The dose was reduced a number of times, until the patient was taking 1 dram once in 2 weeks, still with one daily evacuation. Movements became easier, fuller, and of softer consistency. The patient had developed a tuberculous kidney, which was removed. Since the operation she has had a daily movement, without the use of any medication.

**Case 2:**—A woman, age 32, who had been constipated for more than 4 years, took daily cathartics, containing aloes and phenolphthalein. She had an allergic condition, which manifested itself in fits of sneezing lasting from 15 minutes to half an hour. These spasms recurred daily, without regard to the season, and were not relieved by ephedrine or epinephrine.

The patient was given plain granule medication, and the protein in her diet was reduced. Constipation was relieved; but what is more interesting, her sneezing spasms seemed to decrease, as well, both in frequency and time. Proteins were gradually increased, but the spasms did not increase.

**Case 3:**—A man, age 30, had been constipated since childhood, and was given castor oil while a child. When I first saw him, he was taking "liver pills," containing phenolphthalein.

He was first given plain granules, and then transferred to frangula-containing granules for 2 weeks. Thereafter, plain granules produced daily movements without straining. At present, medication is required on the average of once a month. He reports a general feeling of well-being, which he did not have prior to treatment.

**Case 4:**—A child of 6 years complained chiefly of straining at stool. The mother stated that the child spent half an hour at stool, and then the movement was incomplete.

The patient was given 1 dram of plain granules once a day for 1 week. After the first dose there was no straining and complete defecation took about 7 minutes. The amount of stool was increased. The dose was then cut down, until the child now receives 1 dram about every other week.

**Case 5:**—A woman, age 60, gave a history of constipation since her first childbirth, about 40 years ago. She had delivered 7 children, and had a ventral hernia which approximated a second abdomen in size. At the time of her first visit, she was taking "liver pills" daily; magnesium sulphate twice a week; and enemas once or twice a month.

She was given granules with frangula, 2 drams twice daily, and had a daily movement. After 2 months it was still necessary to take medication

twice a week, and at times oftener, to secure a daily evacuation. The patient states that flatulence and distention, which she experienced almost daily before taking the granules, are now completely relieved.

These five cases were selected from the hundred because they seemed to be typical of the results encountered and because each exemplified a different type of case.

Two interesting sidelights were elicited. In obesity, because of its added bulk, the medication is useful as an adjunct to a restricted diet, as it diminishes the probability that the patient will leave the table with a feeling of an empty stomach. It also seems to be useful in a large percentage of obese individuals who complain of sluggish bowels. The other sidelight was that of the patient with allergy. Sensitivity tests had been made and the patient was given a series of injections, in an attempt to desensitize her, without any results. From the relief of allergic symptoms, it would appear that constipation was a partial factor in causing the allergy.

The series also illustrates the fact that a number of physically deformed individuals (tuberculosis of the hips, obesity, and ventral hernia) are susceptible to constipation, and the medication was successful in relieving at least one complaint. Another type of patient to whom this remedy proved useful was the cardiac case, in whom all physical effort had to be reduced to a minimum.

### Conclusions

The following facts have been determined from this series of 100 cases, treated for constipation with synergistic therapy:

- 1.—This medication increases the frequency and amount of the bowel movements; lessens the strain; and aids the patient in having an easier defecation.
- 2.—In most cases, treatment can be discontinued after a few weeks, and the patient will still have a daily evacuation.
- 3.—It caused flatulence in only 3 cases out of 100, and this was a temporary condition.
- 4.—The patient does not acquire a tolerance for the medication, as the dose is always decreased rather than increased as the treatment proceeds.

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## Feeding Problems in Children

"So Willie Won't Eat His Spinach?"

By

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Doctor Wier

Practically every clinician, general or special, has encountered feeding problems in children, so Dr. Wier's informal discussion of that subject should prove helpful to many.

**T**HE eating habits of children have given thousands of mothers and doctors, young and old, the jitters. It is not natural for young animals, including boys, to starve themselves, and when a boy refuses to eat, one of two things is the matter with him: He is either sick, or has developed a negativism complex; and the negativism can be traced to some error in his family life and ill-advised methods to correct it.

Perhaps Willie is just recovering from measles,

and is developing a good appetite. Mother has been reading some of the quack literature on dietetics in some home magazine, written by a layman, becomes over-solicitous about Willie's diet, and tries to force him to eat certain articles of food that he doesn't like; thus the ground is laid for negativism. Willie refuses to eat his spinach and the other articles of food that mother has read about.

To cite a typical case: Mother rushes into the young doctor's office, with Willie by the hand. She is all excited and says, "Doctor, Willie won't eat! Can you do anything about it?" The Doctor gulps a couple of times and wishes he could jump out of the window to escape from this dilemma. Then he has a bright idea (for a minute). He says, "Madam, perhaps you should see an older doctor. Now there is old Dr. Brown—." Mother interrupts: "No use! I saw Dr. Brown and he told me to see you; that you were just out of college with a lot of new fangled ideas and no doubt you would know just what to do. Do you?"

Now he wishes that he had jumped, but the matter is quite simple:

Don't offer Willie any spinach, and then he will ask for it, and so with all children alleged to be finicky eaters. The children are not finicky; it is their mothers and other members of the family who have developed a superiority-combative nega-

tivism in them by the suggestion that they *must* eat spinach. So Willie accepts the challenge and *refuses* to eat spinach.

Once Willie has declared himself, he takes a certain amount of pride in his new status and all of the attention he is receiving, and in order that this attention may not wane, he adds a few more articles of food to the list—mostly foods that he never cared much for, anyway. He hasn't the moral courage to turn down pastries and ice cream, but mother is so obsessed with her new responsibility of trying to make Willie eat that she fails to notice these slight discrepancies in his hunger strike, and at every meal the battle is on.

Mother loads up his plate with everything on the table, the quantity of which would dismay Joe Louis. Willie sizes up this mountain of fodder and settles back in sullen silence, and mother cajoles, threatens, and bribes: "Now Willie eat your spinach, eat your potatoes, eat your meat and bread. My goodness, why don't you drink your nice milk? If you don't eat your carrots, you can't have any of that nice mince pie I baked for you."

Willie's mouth waters and he almost weakens. The only thing that keeps up his intestinal fortitude is the knowledge that that thin dime in his pocket will buy two hot dogs, so he resists temptation and eventually "compromises" with mother for two pieces of mince pie instead of spinach and carrots.

Things go on from bad to worse. Mother is getting more naggy and anemic every day, while Willie seems to be holding his own, in spite of his apparently scanty diet. Of course, Mother doesn't know that he raids the ice box every night. If there are any nearby relatives, they are always good for a piece of pie or cake, or even a square meal; and dad can be touched for a dime a day, for hot dogs or hamburgers. Mother is on the verge of a nervous breakdown.

About this time, Mrs. Jones tells her that *her* doctor "has a way with children," so mother throws Willie into the car and drives through half a dozen traffic signs, speeding to the doctor's office, where she tells him that Willie won't eat and is getting thin and all run down (in spite of his pink cheeks), and finally pulls out her handkerchief and begins to weep. This gives the doctor

a chance to give Willie the once-over. And his experienced eye sizes up the situation at a glance. Willie is a gay young deceiver, that is all. The whole pathos is in the head of his gullible mother. So the doctor gives Willie a quarter and sends him to a distant news stand for nickel magazine, telling him to keep the change. This makes a hit with Willie. (Always have a little change for children; it's the password to their hearts.)

Then the doctor turns to the mother: "My dear Madam, there is positively nothing wrong with Willie. He has been deceiving you about eating. His pink cheeks and well-nourished body do not denote starvation. Now here is a plan that will positively work. Call your family in secret session and tell them to leave Willie strictly alone at the table. Don't ask him to eat; don't pass anything to him; ignore him. Then prepare one of your finest dinners, including everything he used to like, but *just enough for one meal*. Clean out the ice box and all other sources of food supplies. Tell father not to give him any money. The next day prepare another big dinner, with pie and cake, but don't offer him any. If he asks for anything, have it prearranged for father to pass it to him instead of you. And don't offer him anything else."

Willie sulked through the first dinner, and then asked father for the usual dime, but father was out of change. Willie bolted out of the door, headed for the relatives, but they had been tipped off and were just out of pie and cake. Willie was bewildered. What was this? Were his folks tired of him and going to let him starve. Well he'd show them!

On the third day, there was another big dinner. Willie was the first one to the table and began asking for everything in sight.

About a week later, mother called to see the doctor, and said, "Doctor, it worked! You ought to see that boy eat! I'm afraid you will have to give me something to stop him before he eats us out of house and home."

Few children will refuse to eat for long. If the parents suddenly cease making a scene at every meal, it spoils the show and there is no kick in it any more.

313 Sixth St.

## Democracy or Republic

*Democracies have even been spectacles of turbulence and contention; have ever been found incompatible with personal security or the rights of property; and have in general, been as short in their lives as they have been violent in their deaths.*—JAMES MADISON.

*The government of the United States is, of course, a Republic, in contradistinction of an absolute Democracy; and the theory which regards it as a government of the majority, rests on a gross and groundless misconception.*—JOHN C. CALHOUN.

## LOYALTY TO OUR COUNTRY

*I believe that a nation, like men, must remain true to its confession of faith, and if our nation does that, we shall remain true to the traditions we followed for 150 years—during that time when we traveled the road of being true to ourselves, true to our Constitution, true to our institutions.*—SENATOR HENRIK SHIPSTEAD.

# The Treatment of Vaginitis

By

ALLEN H. MOORE, M.D., Doylestown, Pa.

Vaginitis is a common complaint, and it would appear that the simple treatment which has proved so successful in Dr. Moore's hands is worthy of trial in such cases.

**VAGINITIS**, due to one cause or another, is a common condition, seen by the gynecologist and the general practitioner. In most cases it is associated with leukorrhea, which may be more or less persistent.

The incidence of leukorrhea and vaginitis has been reported by a number of workers. Davis,<sup>1</sup> in an examination of 1,000 women patients, found that 33 percent had some type of vaginal discharge, due to either specific infection (gonorrhea

but the discharge soon recurs as profusely as before. Also, in trichomonas infection, there is an increase in the discharge and burning at the beginning and end of menstruation, with less burning and itching during the period. In some patients, the chief complaint is burning on urination and difficulty in walking because of the marked scalding of the surfaces of the thighs.

In most of the cases the discharge ran out of the vagina on separation of the labia, and in some of the cases there were scratch marks to give evidence that the patient had a great deal of itching. The acute cases of trichomonas infection showed a diffuse reddening of the vulva, vagina, or cervix, similar to that noted in any other acute vaginitis. The chronic cases showed the so-called *colpitis granulosa*, "strawberry vagina," or "salt-and-pepper vagina," which is characteristic.

## Treatment

Many treatments have been recommended for vaginitis, and especially for *Trichomonas vaginalis* vaginitis, and consist of two types of technics: wet and dry.

The patient should be placed in the lithotomy position, and a vaginal speculum introduced. The vagina should then be thoroughly but gently scrubbed out with tincture of green soap, to remove all debris and discharge, and then flushed with 25-percent salt solution, after which the vagina should be thoroughly dried with cotton pledgets.

Following this scrubbing, if the wet method is to be used, tampons saturated with Hexylresorcinol (Solution S. T. 37) may then be introduced. This type of treatment is usually followed up by douches of "S. T. 37," sodium bicarbonate, or salt.

In the dry method, after the vagina has been wiped thoroughly dry and the speculum has been removed, a water-soluble jelly containing 1:1,000 Hexylresorcinol, known as Caprokol Jelly,\* should be introduced with the applicator that goes with the product. This applicator assures the introduction of a measured quantity of the jelly well up in the vault of the vagina, and allows it to spread over the entire vaginal mucosa, as it has a hygroscopic action.

Treatment with this jelly was repeated on alternate days until the parasites were all killed and the vaginal mucosa healed. If this potent antiseptic could be kept in contact with the parasites continually, the problem would be greatly simplified, but no treatments were given during the menses. The patient was instructed to douche twice daily with two quarts of warm, 25-percent salt solution, or preferably, a 25 percent solution of Hexylresorcinol.

In addition to the uniformly good results obtained by the method described, several other features commend its use. The itching and discharge subside rapidly, and many of the women noted that, after the first treatment, these were markedly lessened.

The "cure" was determined by the patient's

\*Supplied by Sharp & Dohme

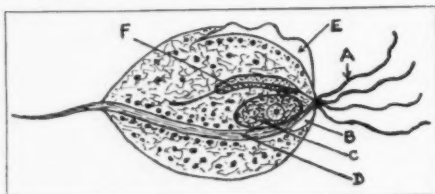


Fig. 1:—Diagrammatic sketch of *Trichomonas vaginalis*: A, Anterior free flagella; B, cytotome; C, nucleus; D, axostyle; E, undulating membrane; F, parabasal apparatus.

or *Trichomonas vaginalis*) or to some undifferentiated agent. Karnaky's<sup>2</sup> examination of over 10,000 women showed that 37.5 percent presented a discharge due to trichomonas, while in a larger series of 25,000 patients he found *Trichomonas vaginalis* present in 25.5 percent. He also found that 46.3 percent of the women were Negroes, while 24 percent were white; and that the ages of the patients ranged from 11 to 52 years, the commonest age group being 23 years.

My experience in private practice has verified these findings, but it is common knowledge that leukorrhea is more frequent in underprivileged and uneducated women than in those in better circumstances. Over a period of two years, in a very active practice in a white community, 15 women presented themselves for treatment because of severe vaginitis and profuse leukorrhea.

## Diagnosis

The patients generally came to the office because of the discharge, which was usually associated with itching and burning, and chafing of the external genitalia and inner aspects of the thighs. It is well to note that no other infection besides *Trichomonas vaginalis* causes a scalding sensation of the vagina, vulva, and perineum, and consequently this finding may be used as a point for differentiation.

Although the discharge was usually thin and creamy, in some cases it was thick and yellowish. The discharge of trichomonas infection must be distinguished from that of gonorrheal infection, which was not found in this series of cases. This discharge may resist all types of treatment, though it may sometimes be checked by simple douching,

passing through two menstrual periods without recurrence of symptoms, and by the absence of discharge.

The treatment of the vaginitis is, of course, easier if any existing cervicitis or endocervicitis is cleared up. This should be done by coagulating the cervical canal and any erosions, immediately following the first menstrual period after the patient comes under treatment.

Zener<sup>3</sup> emphasizes the fact that, although trichomonas vaginitis is not a typically cervical infection, small numbers of these organisms may persist in the cervical glands and frequently cause reinfection. Also, the trichomonas may be harbored in the urinary bladder, and it should be remembered that another source of reinfection may be from sexual intercourse.

### Case Reports

**Case 1:** A married woman, 32 years old, with one child, suffered from moderately severe pruritus vulvae associated with a heavy leukorrheal discharge. She had used all types of vaginal douches, without results. She used Caprokol jelly, both internally, to all parts of the vaginal canal, and externally to the vulva, for several weeks. This treatment afforded her complete relief.

**Case 2:** A married, nulliparous woman, age 22, complained of a moderate leukorrheal discharge. She had been using Lysol douches, but found that the condition was getting worse. The discharge was particularly annoying at night. Caprokol jelly, with physiologic salt solution douching, gave her relief in one week. After several visits to the office, her condition was considerably improved.

**Case 3:** A severe and continuous vaginitis, of trichomonal origin, was noted in a woman 38 years old. Caprokol jelly was used for four consecutive weeks. A cure was effected.

**Case 4:** Caprokol jelly was used in the treatment of a woman 52 years of age, the mother of 5 children, for four weeks. She had suffered from a severe leukorrheal discharge for 2 years. Only partial relief was obtained. She did not return for treatment after four weeks.

**Case 5:** A 31-year-old, married woman, with two children, suffered from moderately severe vaginitis, with a small amount of leukorrheal discharge. Caprokol jelly was used. Recovery was prompt and complete in three weeks.

**Case 6:** After using a salt water-tincture of iodine solution douche for a number of months, a 41-year-old woman, the mother of one child, who had been suffering intensely from vaginitis, associated with pruritus vulvae, abandoned the treatment and began the use of Caprokol jelly. She was relieved almost immediately.

**Case 7:** A woman, 24 years of age, had a profuse leukorrheal discharge for three years, with intense itching and vulvitis. Various stock douches had failed to give any relief. She had used Mercuriochrome suppositories a number of times, without results. Caprokol jelly gave her relief, but only after five weeks of intensive treatment.

**Case 8:** A woman, 25 years of age, had a severe leukorrheal discharge for several months, following the birth of her last child. She had used Lysol douches without results. After using Caprokol jelly for 3 weeks there was moderate improvement. All of the discharge disappeared in two months.

**Case 9:** After having a leukorrheal discharge for 2 years, a 31-year-old woman began the use of

Caprokol jelly. Relief was prompt, and the discharge disappeared completely after three weeks of treatment.

**Case 10:** After having a leukorrheal discharge for a number of months, a woman, age 27 years, the mother of three children, was advised to use Caprokol jelly. She obtained complete relief in two weeks.

**Case 11:** A 30-year-old woman, with one child, had had a leukorrheal discharge since early girlhood, but it became more profuse after her child was born. In spite of intense itching, she had never used any douches. The use of Caprokol jelly gave her instant relief. The discharge did not disappear completely, but it was considerably lessened and the patient was much more comfortable.

**Case 12:** A patient, 23 years old, nullipara, had an extensive erosion of the cervix, associated with a profuse leukorrheal discharge. She obtained prompt relief from Caprokol jelly.

**Case 13:** A 27-year-old woman, with three children, had vaginitis with leukorrhea. Physiologic salt solution douches were used, without any relief whatever. The patient had also used various vaginal suppositories unsuccessfully. Caprokol jelly gave only partial relief. The patient did not return for treatment after two visits.

**Case 14:** A patient, 41 years old, who had four children, suffered from a rectocele and cystocele, associated with a profuse leukorrheal discharge. She had also complained of dyspareunia. She was treated for six weeks with Caprokol jelly, and obtained complete relief. The intense itching, associated with the discharge, yielded promptly to this treatment.

**Case 15:** Suffering from a mild leukorrheal discharge, with intense itching and burning, a 34-year-old patient, the mother of two children, obtained prompt and complete relief from the use of Caprokol jelly.

### Summary

1.—*Trichomonas vaginalis* is a common cause of vaginitis and is found in at least 25 percent of women, although it is less common in white women and most common in multiparous individuals.

2.—The commonest findings in trichomonas vaginitis are a profuse discharge, associated with itching and burning which are very resistant to treatment.

3.—Treatment of vaginitis may be with Hexylresorcinol solution alone, but preferably in the form of jelly, which has yielded the best results.

4.—Uniformly good results were obtained in 87 percent of the cases treated with Caprokol Jelly, while an additional 6.5 percent obtained partial relief.

5.—Following the use of this jelly, the itching and discharge was found to subside rapidly, but a "cure" was not accepted until the patient had passed through two menstrual periods without a return of symptoms and with an absence of discharge.

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# Vaginal Versus Abdominal Hysterectomy\*

By

WILLIAM G. RURIK, M.D., Chicago, Ill.

Associate Attending Staff, Obstetric and Gynecologic Section, Ravenswood Hospital

Abdominal hysterectomy is a rather formidable operation, and the vaginal method is much simpler and gives decidedly better results in cases where it is indicated.

Dr. Rurik compares and contrasts the two methods and makes pertinent suggestions as to the choice in specific cases.

**T**HE advent of radium and x-ray therapy in uterine disease, especially cancer, has diminished the number of hysterectomies performed, and the advance in our knowledge of female sex hormones will probably reduce it still more. However, there will always remain cases in which removal of the uterus will be the treatment of choice.

In every case in which hysterectomy is indicated, the surgeon must decide whether the operation should be performed by the abdominal or the vaginal route. In subtotal abdominal hysterectomy, only the body of the uterus is removed; whereas, in total abdominal hysterectomy and vaginal hysterectomy, the cervix is removed with the rest of the uterus. The importance of removing the cervix is recognized by the majority of surgeons. In multiparas, the cervical stump left by subtotal abdominal hysterectomy is liable, even many years later, to develop cancer. Moreover, it is frequently the source of an annoying leukorrhea and sometimes the cause of dyspareunia or the site of a growing fibroid. In nulliparas, also, it may be responsible for future trouble.

When a choice between vaginal and abdominal hysterectomy is possible, the surgeon should choose the vaginal operation for the following reasons:

- 1.—It is attended by less shock, especially in the cases of very obese women, elderly women, and women in poor general health.
- 2.—It is followed by more rapid convalescence, which reduces the patient's stay in the hospital to an average of twelve days.
- 3.—The incision at the vault of the vagina allows better drainage than an abdominal incision.
- 4.—There is no abdominal scar. For this reason many women will submit to a vaginal hysterectomy more willingly than to a hysterectomy by the abdominal route.
- 5.—There is no risk of an incisional hernia.
- 6.—A vaginal hysterectomy can be performed more quickly than an abdominal hysterectomy.
- 7.—The risk of infection, resulting in peritonitis, is minimal, as the operation is largely extraperitoneal. The danger of bowel obstruction and post-operative adhesions is also less than after abdominal hysterectomy.
- 8.—Rectocele and cystocele may be corrected at the time of the hysterectomy; whereas, when the

\*Presented at the Obstetrics and Gynecology Round Table, Ravenswood Hospital, March 4, 1939.

abdominal route is chosen, their correction requires a double procedure.

9.—The morbidity and mortality are lower than after abdominal hysterectomy.

10.—Complete removal of the cervix is assured.

## Indications for Vaginal Hysterectomy

The indications for vaginal hysterectomy are rather elastic and relative. The proper choice of cases requires consideration of the advantages of the vaginal route, the contra-indications to its use, and the ability of the surgeon to perform the vaginal operation.

In the absence of contra-indications, vaginal hysterectomy may be performed with safety in the following conditions:

### 1.—Bleeding of the uterus due to:

- A.—Multiple fibroids causing symptoms and associated with disease of the cervix and extensive obstetric injuries.
- B.—Chronic subinvolution of the uterus with severe laceration or a precancerous cervix.
- C.—Polypi of the uterus beyond reach, occurring at about the time of, during, or after the menopause, and especially when associated with prolapse.
- D.—Fibrosis of the uterus with chronic metritis and arteriosclerotic changes in the uterine wall and extensive changes in the cervix.

2.—*Prolapse of the uterus:* In cases of complete procidentia, in which the bladder and rectum require attention, abdominal fixation operations frequently fail. The vaginal route is indicated especially in cases of long-standing prolapse with advanced infection and ulceration of the cervix.

3.—All cases in which the cervix has been amputated and the leukorrhea and other symptoms persist.

4.—Uterine conditions in obese women and women with skin disorders, burns, colostomies, heart disease, lung disease, or general debility.

5.—*Inversion of the uterus.*

6.—*Sepsis of the uterus* following criminal abortion.

## Contra-indications to Vaginal Hysterectomy

The only two absolute contra-indications to vaginal hysterectomy are tumors of large size and fixation of the uterus by adhesions due to infection, postoperative adhesions, or a previous suspension operation. The size of tumors constituting a contra-indication ranges from that of an eight-weeks' pregnancy to that of full-term fetal head, depending upon the surgeon.

## Abdominal Hysterectomy

Abdominal hysterectomy is preferable to the vaginal method for:

1.—Uterine diseases in nulliparas whose ligaments and fascial supports are firm and whose rectums and bladders are normal.



2.—*Cancer of the body of the uterus.* In this condition, abdominal hysterectomy is preferable to vaginal because it requires less handling of the uterus, and because cancer of the body of the uterus is more frequent in nulliparas than in women who have borne children, and the narrowness of the introitus and vagina in the nullipara renders vaginal hysterectomy difficult.

3.—Cases in which *abdominal exploration* is advisable or other abdominal surgery is planned.

4.—Cases in which the uterine condition is complicated by *hemorrhoids, fissures, or a fistula.* In order to obviate the chance for infection, such complications should be corrected by a separate operation, performed *after* the abdominal hysterectomy.

5.—*Uterine disease associated with other pelvic diseases*, such as endometriosis and large cysts. The abdominal route is preferable to the vaginal in cases of endometriosis, because endometrial transplants are found chiefly at the bottom of the cul-de-sac, in the region of the rectum, bladder, and ureters.

6.—Conditions in which downward pull on the cervix is resisted by *adhesions*, tightened or rigid uterosacral and cardinal ligaments, cystic ovaries, or hydrosalpinx.

7.—Cases in which *the anatomy of the true pelvis is distorted* by an intraligamentary, retroperitoneal, cervical, or subcervical fibromyoma. In such cases the use of the vaginal route may be hazardous to the bladder, ureters, or bowel.

8.—*Large fibroids.* The removal, by the vaginal route, of a uterus with large fibroids may injure the bladder by overstretching its sphincter.

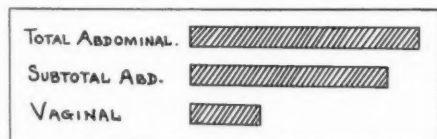
9.—*Pedunculated parasitic fibroids*, obtaining their blood supply from an adherent omentum, mesentery, or bowel.

10.—Cases in which vaginal hysterectomy would be attended by the danger of spilling the contents of an ovarian tumor.

### Comparative Morbidity and Mortality

Of a series of 554 hysterectomies studied, 330 were abdominal and 224 were vaginal. In the cases

GRAPHIC COMPARISON OF DEATH RATES



treated by abdominal hysterectomy, the morbidity was 5.6 percent, and in those treated by vaginal hysterectomy it was 0.89 percent. In the former, the most common complications were ileus, peritonitis, shock, incisional abscesses, phlebitis, intestinal obstruction, incisional hernias, bladder injuries, and eversion. In the latter, they were anuria, bladder injuries, ureteral injuries, prolapse of the tubes, prolapse of the vault of the vagina, and bowel injuries.

The mortality is shown in the following table:

Type of Hysterectomy	No. of cases	No. of deaths	Mortality (Percent)
Subtotal abdominal.	230	6	2.6
Total abdominal...	100	3	3.0
Vaginal .....	224	2	0.89

In the final analysis, the advantages of any type of hysterectomy depend, to a high degree, upon the judgment and ability of the surgeon.

### Discussion

By Arthur J. Chaloupka, M.D., Chicago,  
Attending Staff, Obstetric and  
Gynecologic Section

Vaginal hysterectomy is associated with less shock and less manipulation of the intestinal tract than is abdominal hysterectomy, and therefore is followed by a much more rapid convalescence. By removing the cervix completely, it eliminates the danger of the future development of carcinoma in the cervical stump. The danger of injury to the ureters and bladder is no greater than in a total abdominal hysterectomy. Moreover, when such injury occurs, better drainage is obtained than in the abdominal operation.

After abdominal hysterectomy with removal of the cervix, there is usually a prolonged exudate at the stump, which absorbs slowly, and the patient as a rule runs a higher temperature for a longer period of time before it clears up. The exudate following the vaginal operation clears up more quickly because of better drainage. On the other hand, by the vaginal route the removal of large tumors is impossible, and tumors of the ovaries may be overlooked.

To determine whether hysterectomy may be performed by the vaginal route, it is necessary to determine whether the uterus is freely movable and can be brought down. If it cannot be pulled down, vaginal hysterectomy will be extremely difficult. In cases of carcinoma of the uterus, which have been treated with radium for from four to six weeks, it is advisable to perform a total abdominal hysterectomy, as this will permit wider dissection of the parametrium than is possible by the vaginal route. The abdominal route should be chosen, also, in cases in which the uterine condition is associated with some abdominal disorder, such as chronic appendicitis or gallbladder disease.

By Charles C. Rentfro, M.D., Chicago,  
Attending Staff, Obstetric and  
Gynecologic Section

In choosing between vaginal and abdominal hysterectomy, it is necessary to consider the nature of any tubal or ovarian complications that may be present. Sometimes the surgeon must perform an abdominal hysterectomy after planning a vaginal hysterectomy, or *vice versa*. In a case of tumor, in which I planned to perform an abdominal hysterectomy, the doctor referring the case informed me that the abdomen would not stand suturing, as the patient had received x-ray treatment. I therefore changed my plan and did a vaginal operation, removing the tumor without serious difficulty.

1931 Wilson Ave.

# A Living for the Doctor

## The Business of Medicine and the Art of Living

### Medical Bigotry

IT is unfortunate that medical authorities, who should be the most tolerant of leaders, are often as bigoted as political leaders, and with as little logical reason.

The leaders in Medicine need only consult history to find that every advance has been fought by the supposed authorities of the time. The names of Semmelweis, Lister, and other medical martyrs come to mind. Yet, in this advanced age, conservatism is still confused with mental laziness and inability to adjust, and the pronouncements of the learned are looked upon as imperishable truth.

An eminent cardiologist feels that the roentgen rays have been overemphasized as a means of diagnosis in heart disease. Does he gently remind his audience that no one mechanical method of diagnosis is infallible; that the x-rays cannot measure the strength of the heart muscle; and that one view may be misleading?

He does not! Like the Queen in "Alice in Wonderland," who was forever ordering heads struck off, he writes thus witheringly: "*Slight degrees of enlargement, not detectable by simple methods of physical examination, are rarely of clinical significance.* Slight increases in heart size from examination to examination, such as cannot be determined accurately by physical examination, play no rôle in ordinary clinical work."

One wonders why this "authority" feels that we should await gross changes in the heart size before beginning treatment. There is a period during which a heart of normal size is slowly enlarging; this is the golden period for beginning treatment. And if two roentgenograms, taken at suitable intervals, show that the heart is enlarging, even if only "slightly," why should one wait until more muscle damage takes place?

The fate of peritoneoscopy is even more revealing, as an indication that mental calcification is not unknown today. By a simple puncture of the abdominal wall, one may view the abdominal viscera that are exposed in the abdominal cavity; one may definitely rule out the potentially fatal ectopic pregnancy; one may diagnose abdominal tumors not otherwise determinable; one may quickly learn if metastasis to the liver has rendered an abdominal malignant tumor inoperable; and patients with ascites can be studied readily.

Yet, today, very few of the leading clinics and

university hospitals are routinely using peritoneoscopy, patients are still being subjected to unnecessary operations, and important diagnoses are being overlooked. Every time a patient is needlessly subjected to a useless exploratory operation, surgery, and especially the surgery of cancer, receives a black eye. We realize that a certain number of exploratory laparotomies are inevitable, if every patient is to have a chance for life. What we do object to is the bigoted avoidance of any method of examination which will save the patient expense and suffering.

The saving grace of Medicine is the few fanatical believers in *the truth* at all costs, whether it conflicts with dogma, tradition, or personal beliefs. Their first question is, "Is it true? Does it succeed?" rather than, "Who says it is so?" or "It can't be true," or "In my experience, it is never necessary."

The well-balanced physician will continue to use his critical faculties, regardless of the origin of dogmatic statements.

R. L. G.

### How Do You Look to Yourself?

IT was the Scottish bard, Robert Burns, who eloquently prayed that power might be given us to see ourselves as we appear to others, but, while that experience might sometimes be pleasant and inspiring, it seems probable that it would more often give a very decided jolt to our self-esteem; but, pleasant or unpleasant, it ought always to be profitable.

If George Crile, Elliott Joslin, Hugh Young, Henry Christian, or other celebrities in that class want to go around looking like a last-year's bird's nest (they don't!), they can get away with it, because they have a national and international reputation and, theoretically, it does not matter how they look; but, if you and I want to get on and make a success in life, we have to keep ourselves looking like respectable human beings, because, in spite of all moral, spiritual, and ethical considerations, the opinion formed of us by those we meet is very largely determined by the way we look and act when they meet us.

It is a curious and an interesting fact that prac-

tically all of the famous men in the medical profession who could, theoretically, afford to be untidy in their dress and uncouth in their manners are among the most punctilious dressers and the most polished gentlemen in the country.

It would be the height of folly for a man to bedeck himself in gorgeous raiment, far beyond his means; but, even at that, we have a suspicion that such a course might be preferable to that pursued by some, who insult the morning by appearing with unkempt hair, dirty collar and finger nails, baggy trousers, and tokens of yesterday's poached egg on the front of the vest.

Good clothes, by themselves, will not make a

good man or a good doctor out of a scoundrel or a quack, but they will go a long way towards establishing that feeling of self-confidence and inner dignity which is essential to success in any line of work, and particularly in those callings which bring men into intimate and personal relations with their fellows.

It is perfectly possible for any man (or woman) who respects himself sufficiently to give the matter a reasonable amount of time and attention, to be neat, well-groomed, and dressed becomingly and appropriately; and any man who does not respect himself sufficiently to do these things has no right to complain if other people fail to respect him.

G. B. L.

## ★ Notes and Abstracts ★

### How to Write Your Congressman\*

WRITE to your Congressmen! They spend more time reading and replying to their correspondence than in any other part of their work. Your letters average 110,000 each day, rising to a half a million or more when you really get excited. Members rely on the mail for support and guidance. They often gather from your letters courage to withstand pressure from the Administration or from an organized group. Your letters kept them in session this past summer.

The communication which does the most good is the brief, forceful note reflecting an individual's firm conviction. Most of all, you are influential when you ask your Congressman to vote "yes" or "no" on a bill in committee or before the House. Your request should be accompanied by enough logic to show that it is your own idea, not merely a willingness to do a favor for some organization. Congressmen know that only the voter who sits down and expresses his feelings in his own language will remember them on election day. Address Representatives, "House Office Bldg., Washington, D.C."; Senators, "Senate Office Bldg."

State concisely what you want and why. If you don't know, don't write. Leave out clippings, even though you think that some prepared statement best expresses your feelings. Your Congressman wants to know what *you* think. Never threaten. Never say: "Many others feel as I do, and unless you vote," etc. A Congressman is human and threats make him feel resentful. If other voters do feel as you do, he knows he will hear from them.

BRUCE BARTON

Former Congressman from New York

### Follow-Up Work

HERE are a few rules and suggestions for building and holding a family practice, and rendering service for which people are entirely willing to pay.

1.—Take complete and detailed case histories and record them *in full*—not merely the name of the patient and husband (or wife) but the *names* and *ages* of all children in the family, the date and

character of all operations, major and minor, past as well as current, and all other matters possible, and *keep it up to date*, including births and deaths, brief notes of important social activities, travel, and the like. The more complete it is, even with apparently unimportant matters, the better. *Memorize* as many of these details as possible.

2.—Review the personal and family history of *every patient before seeing him*, in the office or at home, so that you will *know* the background, *without asking questions*, and can allude to recent trips, visitors, and other activities, and to the children, if any, *by name*.

3.—Inquire about the health of all members of the family, immediate or remote, who are known to have been ill recently or to have a chronic disease.

4.—Follow up every case, by telephone or letter, after the patient is discharged, to make sure that instructions as to diet, regimen, etc. are being followed. Remind parents when young children should be vaccinated against smallpox and diphtheria, and, in the presence of epidemics, protected against scarlatina and measles.

None of these methods is unethical or can be considered as "case chasing." They are merely services which the family doctor *should* render to his patients and their families.—JAMES WATSON, M.D., in *Med. Economics*, Dec., 1940.

[In addition to these excellent suggestions, it might be a good plan, after a patient has been at all seriously ill, to call him up once or twice, after discharge, and ask him to come in for a brief check of his condition, *without charge*.—ED.]

### Stop Your Car!

IF, WHEN driving, you suddenly see an obstacle ahead, do not try to dodge it, but *go straight ahead* and use all available force in *stopping* the car.—DR. SEVILLE CHAPMAN, in *Science News Letter*, Jan. 18, 1941.

Although I have retired from active practice, I am still a subscriber to CLINICAL MEDICINE. It has been the most satisfactory medical journal that I have taken.—E.M.T., M.D., Calif.

\*Adapted from *The Reader's Digest*, September, 1940.



## The Seminar

*Our readers are cordially invited to submit fully worked up problems to the Seminar and to take part in the discussions of any or all problems. Discussions should reach this office by the 5th of the month following the appearance of the problem. Send your problems and discussions to The Seminar Dept. care CLINICAL MEDICINE, Waukegan, Ill.*

I do not have to use any citrate solution, and inject it at once.

### Problem No. 1 (Surgical)

Presented by Paul E. Craig, M.D.  
Coffeyville, Kans.

(See CLIN. MED., Jan. 1941, page 22)

**RECAPITULATION:** A woman, 45 years old, weighing 227 pounds, the wife of a dairyman, had a supravaginal hysterectomy for fibromyomas in October, 1939. Her convalescence was stormy, but recovery appeared to be complete.

Ninety (90) days later she developed brucellosis (proved by agglutination tests), which was treated with vaccine and Foshay's serum, but abscesses developed at the site of each injection. Moreover, a painful swelling appeared in her right axilla, and grew rapidly.

On May 2, 1940, the patient developed intestinal obstruction in the ileocecal region. At operation, an ileostomy was made and a diverticulum of the rectosigmoid was discovered. On account of her bad condition, the wound was closed rapidly and stab drains were placed in the right and left lower quadrants. The ileostomy functioned well.

Five days later, feces appeared in the left drainage wound and, successively, the old midline incision opened and the bowels protruded, the skin margins becoming undermined; a vesico-intestinal fistula developed; and the exposed bowel became gangrenous, in patches, and sloughed. After incision, the mass in the right axilla discharged foul, green pus and became a rapidly growing, fungating tumor, and deep abscesses developed on the arms and legs. The patient died on the 49th day, and autopsy was refused.

**Requirements:** Suggest the diagnosis, giving reasons. What further diagnostic procedures would you have employed? How would you have treated this case?

Discussion by J. E. Fraser, M.D.  
Port Elgin, Ont., Can.

This woman apparently developed a blood infection (probably staphylococcal) that was deposited here and there in the tissues. This should have been decided, microscopically, from the pus from the abscesses. Vaccines should also have been prepared and given.

I am a strong believer in and user of autohemotherapy, sometimes with truly remarkable results. Boils clear up, sometimes with 1, 2, or perhaps 3 treatments. I have seen only one case in which it failed. With some people, every cut or abrasion becomes "pussey." Local treatment helps, of course, but their own blood works remarkably well.

I should have given this woman some of her own blood, intramuscularly, at least once a week. I remove it from a vein, everything being ready, so that

Discussion by W. B. Palmer, M.D.  
Furman, Ala.

A large factor in the success of surgery is the general practitioner, who should be prepared to be the supreme adviser about all patients he refers to specialists, with the exception of the operative technic. He should be sure that there is no acute or chronic infection, or should advise the surgeon of its presence. If there is a threatened breakdown in any vital part of the system (in this instance, myocardial weakness from obesity), the cause should have been removed by reducing the weight within the bounds of safety. We can afford to postpone the removal of a fibroid for preoperative preparation.

In the reduction of weight there are many dangers, particularly that of aggravating what I have called for many years a "deficiency syndrome," which usually exists with women who have fibroid tumors of the uterus, even if obesity and hypertension are found. This deficiency syndrome is caused by an insufficient appropriation of food by all the tissues of the body, as a result of a faulty diet or some disorder of the metabolic system. An excessive loss due to pathologic causes, especially in the gastro-intestinal tract, can produce a similar condition. Pellagra is only part of the picture.

This is stressed because those suffering from a deficiency syndrome are poor surgical risks. I have known of deaths from operating on masked pellagrins for fibroid tumors, and even for hemorrhoids, and many deaths from the administration of full doses of arsphenamines have occurred in those suffering from pellagra, as Dr. Martin, of Hot Springs, Ark., proved at least twenty-five years ago.

Discussion by George B. Lake, M.D.  
Waukegan, Ill.

So much information, which it is difficult to believe was not obtained in this case, has been withheld in stating this problem, that it would be rash to attempt anything like a definite diagnosis. One can hardly think that Dr. Craig failed to have microscopic and cultural studies made of the discharges from the abscesses that developed following the injections of brucellosis vaccine and from the tumor in the axilla, or neglected to obtain biopsy material from the mass of tissue that caused the intestinal obstruction, but he has given us no report of the results of such examinations.

Two features, however, characterize this case, which seem worthy of special consideration: (1) The woman was obese and her general resistance was low, as shown by the history; and (2) she had obviously contracted one infection from the cattle in her husband's dairy herd, so that the possibility of another must be considered, to see whether there is one that fits the picture.

The principal diseases of animals which are fairly commonly contracted by human beings, in addition to brucellosis, are *tuberculosis*, *glanders*, *anthrax*, and *actinomycosis*. Bacteriologic studies would make the differential diagnosis easy, but clinical features may give some help.

*Bovine tuberculosis* is rather rare in adults and generally runs a decidedly chronic course; but it is not impossible (though highly improbable) that, in a patient whose resistance was notably low, especially following the brucella infection, it might have progressed more rapidly. The treatment is well understood.

*Glanders* is an infective granuloma, and may appear in acute or chronic form. In the acute type the primary lesions are in the nose, so that may be ruled out here. The chronic type may begin with a skin eruption (not mentioned in this case), and is characterized by the formation of many superficial and deep abscesses, which rupture and ulcerate, exuding an offensive discharge. It cannot, here, be entirely ruled out *clinically*. Treatment is symptomatic and surgical.

*Anthrax* may be a local infection ("malignant pustule") or a septicemia ("wool-sorters' disease"), but is very rarely transmitted directly from living animals. General symptoms usually occur in the lungs, but an intestinal form has been described. Enlargement of the spleen (not mentioned in this case) is a common finding. This diagnosis is highly improbable, but cannot be ruled out *clinically*. The treatment is the intravenous injection of Sclavo's serum or neosarsphenamine.

*Actinomycosis*, in man, is a septicemia, with a tendency to the formation of multiple and metastatic abscesses. The intestinal form (about 20 percent of the cases) tends to involve the appendix, cecum, colon, and perirectal structures, forming abscesses which spread rapidly in all directions. This condition can not be ruled out *clinically*. The treatment is by large doses (40 to 60 grains daily) of potassium iodide.

My first guess, in this case, is *actinomycosis*, and my second, *glanders*. Bacteriologic studies will decide the issue.

#### Solution by Dr. Craig

The patient was obviously suffering from a systemic disease, which was inflammatory in nature and attacked, not only the skin, but the abdominal viscera as well.

*Tuberculosis*, *syphilis*, and malignant disease were ruled out by microscopic examinations of the discharge from the granulomatous mass in the axilla and by slides of the pus taken from the abscesses on the extremities.

The blood Wassermann and Kahn tests were negative. A biopsy specimen, removed from the axillary tumor, showed no atypical cellular differentiation, and no regional adenopathy was evident. Smears of the pus, however, did reveal the presence of an occasional yellow granule which contained mycelia, and a diagnosis of *actinomycosis* was established. Apparently the fungus had involved the terminal ileum and cecum, producing obstruction by cicatricial contraction of the lumen of the bowel. The spontaneous perforation of the sigmoid colon presumably occurred at the site of the diverticulum, which may or may not have been involved in the ulcerating process peculiar to *actinomycosis*. We can only speculate on this point since an autopsy was refused.

The patient gave history of chewing straws around the barn, and admitted that some of the

cattle had "lump jaw." It is reasonable, therefore, to assume that the portal of entry of the ray fungus was through the mouth and, over a period of time, had become disseminated throughout the intestinal tract.

Sodium iodide was given intravenously, and ethyl iodide was administered by inhalation. The axillary lesion was irrigated daily with acriflavine and was packed with sulfanilamide powder, but the treatment had little effect and the patient succumbed.

#### Problem No. 3 (Medical)

Presented by W. E. McKinley, M.D.  
Jewell, Kans.

A WHITE woman, age 46, 5 feet 7 inches tall; weight 118 pounds; married and the mother of three children, two living and one died in infancy, consulted me. She was slender and the right shoulder drooped slightly, due, she believed, to a fall in early childhood. Her chest was flat, and there was an occasional purulent discharge from the left ear, with deafness; she also had sinusitis.

She was always a delicate child; had rheumatism severely in her early teens; chronic malaria for several months at the age of 13; influenza six or seven years previously; and frequently complained of pain and distress in left chest, just above the left nipple.

In early February she complained of slight dyspnea and orthopnea, increasing in intensity. A few days later a teasing, distressing cough developed, especially provoked by change of position, and she expectorated salmon-colored, frothy, sero-mucoid sputum.

On awaking one morning she noticed that the whole left side of the body, from neck to ankle, was painful and swollen, but in three or four days this completely disappeared. Her chest expansion was less on the left side, and her heart action was rapid, with pain in the pulmonic area.

As the case progressed, the patient became more cyanotic; her skin was dry and slightly icteric; there was great pallor of her face and body, and a slight, scattered, macular eruption over the upper part of her chest and left arm. Her temperature was remittent, from almost normal in the morning to 101° or 102° in the afternoon. Her apex impulse was in the 5th intercostal space in the axillary line. A loud friction rub was heard, on both inspiration and expiration, in the 2nd space, left of the mediastinal line. There was slight edema of both feet.

On March 20, signs of fluid in the right chest appeared, and she was taken to a hospital. Her temperature was 101° to 103.5°F.; hemoglobin, 65 percent; leukocytes, 28,750 (later dropped to 13,800); red-cell count, 4,250,000; polymorphonuclears, 80 to 85 percent. Her urine varied in quantity from 14 to 35 ounces; specific gravity, 1.010 to 1.024; slight trace of albumin and a few red blood cells.

Her chest was aspirated, removing a purulent fluid, and she had a hard chill, lasting one hour or more, followed by high temperature and an exhausting sweat. These chills then occurred daily, and on March 26, a rib was resected and drainage instituted, but little discharge followed. From this time on she had two chills daily, followed by a high temperature, until death occurred on April 2. No cultures or roentgenograms were made.

Requirements: Suggest the differential diagnosis, giving reasons, and a plan of treatment.





## Syphilis, Malnutrition, and Allergy

**O**SLER, beloved man and honored physician, said that if a physician knows syphilis he knows medicine. When he moved to London, he stressed this again, and his associates asked him "Where is all this syphilis?" Osler replied, in his gentle way, "Look around you." If he were living today, perhaps he would include, with syphilis, malnutrition and allergy, in the basis of medical knowledge.

In addition to these conditions, I have looked for morbid nervous or "functional" elements, and if found, have tried to discover what relationship they bore to these three basic, systemic conditions. After this routine examination, I have investigated the special symptoms, for relief of which the patient came to me. Sometimes I found none of these three conditions present, but often I discovered that a multitude of symptoms may be nothing more than the expression of one or more of them. If there is an additional disorder, these constitutional states may or may not retard recovery; hence, their recognition is essential.

Syphilis is, in a large measure, curable. It is often congenital, but not *inherited*; that is, it is transferred from the mother, through the placenta, to the child, and not through the chromosomes in the germ and sperm cells, so there is hope of relieving the human race of this burden. We cannot, however, say positively that the germ and sperm cells are not *altered* by the toxins of syphilis, just as radium can alter them.

Malnutrition is largely (but not wholly) an economic problem. There should be cooperation between County Farm demonstrators and the State and County Boards of Health. The public should be taught the foods, and the quantities of each, which are essential for a balanced diet. Milk, chickens, eggs, and vegetables from a home garden, are within the reach of all persons who live on farms. These foods are more beneficial and economical than synthetic vitamin preparations, brilliant and useful as their effects have been.

Dr. Scheppegegrell, of New Orleans, crystallized and popularized all of the accumulated knowledge about allergy, in 1916, and it was at once classed as a disease entity. It seems to be a biologic problem, perhaps following the Mendelian law. If so, it will remain incurable, but much relief can be given, and more can be expected from patient workers of the future.

It is elusive, at times, even to experts. I have the histories of families in which allergy appeared for several generations. I have seen it appear in different phases in different members of a family, or in one individual of the same family. The allergic crisis may appear as *asthma*; "*rheumatism*"; *gastro-intestinal* attacks, such as vomiting, diarrhea, pseudo-obstruction of the intestines, so-called gall-bladder attacks, or appendicitis; *skin lesions*, such as dermatitis, eczema, urticaria, or generalized pruritus; or *nervous storms*, such as dipsomania, migraine, or "epilepsy." I have the record of a family in which allergy was widespread. Two brothers were dipsomaniacs; a sister suffered from migraine; another brother had "epileptic" seizures when he ate scuppernongs or some other food. He could prevent these attacks by being careful what he ate.

Another patient, a white man, is definitely sensitive to many known and unknown allergens. When he eats onions, bronchial asthma will sometimes develop; other times, a violent diarrhea; and at still others a severe paroxysmal tachycardia, lasting for hours and occasionally terminating suddenly with a convulsive seizure. After trying various drugs, I have found that a hypodermic injection of atropine will relieve the tachycardia.

A Negro boy was brought to me with a history of severe attacks of "epilepsy" every year, during April and October. There was a history of allergy in the family, the mother had severe itching spells every year, in March only. The State Board of Health examined all members of this boy's immediate family, and the histories, examinations, and blood tests showed no trace of syphilis.

Many appendixes have been removed; gallbladders have been drained or removed; operations on the coccyx and other organs have been performed, where the conditions were merely symptoms of allergy.

Bear in mind, however, that fanatical adherence to one idea may mislead us. A patient can have any or all of these three systemic conditions and, in addition, some other disease in no way allied to these, which may require additional medical and surgical aid.

I have examined the blood of thousands of patients, routinely. Every pregnant or parous woman was asked three questions: "How many children have you living? How many dead? How many mis-



carriages?" I coined a definition of miscarriage, as the delivery of a dead fetus between the time of conception and that of full-term delivery, due to local pathologic or morbid constitutional states in part of the mother; but *not* including deaths due to malformations of the pelvis of the mother, malpositions of the child, trauma before or during delivery, or other similar conditions, which I classed as accidental.

During my long career (more than 40 years) as an office practitioner, I have never, by words, looks, or innuendo, tried to bring other physicians into disrepute with the laity or with my fellow practitioners. If the greatest men in our profession readily confess their mistakes, why should lesser ones be so ready to censure?

W. B. PALMER, M.D.

Furman, Ala.

### Physical Therapy in Poliomyelitis

**I**N the paralyzes of poliomyelitis, maximum benefits from physical therapy are obtained only if treatment is begun within 6 months of the onset; and 97 percent of all weakened muscles regain the maximum possible strength within 18 months after treatment is begun. Rest and physical therapy can be applied in the home as satisfactorily as in a hospital, except where under-water treatments are used. Plaster casts should not be used for more than from 4 to 6 months, under any conditions.—DRS. G. E. BENNET, R. E. LENHARD, and W. B. CARRELL, before the National Foundation for Infantile Paralysis, November, 1940.

### Non-Surgical Treatment of Lung Abscesses

**NEOARSPHENAMINE** and bismuth render the sputum odorless, in lung abscess, and are of value in combating spirochetal lung infections. *Neoarsphenamine* is given in doses of 0.6 Gm. every five to seven days, for from one to four months. *Bismuth* is given intramuscularly, in doses of 2 cc. of 1.5 percent bismuth sodium tartrate solution, at 3- or 4-day intervals.

*Postural drainage* is effective in most cases. The patient lies across the bed, with his hips supported by the bed and his elbows resting on the floor, so that secretions can drain out of the lungs by gravity as well as by coughing, for five minutes two or three times daily. Aspiration through a bronchoscope should be used in those patients who do not expectorate their secretions freely by postural drainage. A well-drained lung abscess will nearly always heal readily.

*Pneumothorax* is dangerous in these cases (several fatalities are recorded), and in many cases the compression of the lung kinks the bronchus, thus interfering with drainage. *Blood transfusions* are given to those patients whose red-cell count is lowered. *Rest in bed* is essential, although it need not be in a hospital bed.—H. E. JOHNSON, M.D., in *South. Med. J.*, Dec., 1940.

YOUR CLINICAL MEDICINE AND SURGERY is helping me much.—J.L., M.D., Philippine Islands.

### Treatment of Acute Sinusitis

**D**URING acute sinusitis, all forms of irritation must be avoided. Sinus puncture or cannulization, tampons, mercurochrome, and silver compounds should not be used until the acute stage is past. Steam vapor inhalation, local heat (cold may occasionally be more agreeable), rest in bed, morphine or codeine for pain, ample fluids, and nutritious foods are to be employed. Ephedrine in saline solution is used by instillation or displacement. *No complications will occur under this regime*, as is shown by a series of 300 consecutive patients so treated, without orbital or osteomyelitic complications.

Eighty (80) percent of patients with osteomyelitis of the frontal or other bones gave a history of a surgical attack during an acute sinusitis.—E.E.N.&T. Monthly, Jan., 1941.

[Phenacetin or Dover's powder, with acetylsalicylic acid, affords relief without strong narcotics.—R.L.G.]

### The Tired Patient

**M**ANY patients complain primarily of fatigue and easy tiring. They get put through one thorough examination after another, with the hope that some local disease or focus of infection will be found. Usually, it is not. Naturally, one careful examination should be made, especially when ill health comes *after* middle age, to a person who has previously been well; and one may find cancer, anemia, diabetes, hypothyroidism, hypertension, or a failing heart. If, in older persons, depression, fatigue, loss of interests, change in personality, and inability to work come on *suddenly*, the cause is often a slight stroke. "Acute indigestion" is often diagnosed, because dizziness, vomiting, and abdominal discomfort may appear.

In college students, ill health, with indigestion and feelings of fatigue, may be due to *subacute appendicitis*.

If fatigue follows influenza, there may have been a mild encephalitis. More commonly, there will be generalized arthritis or fibrositis (myositis); the patient will "ache all over."

A patient who thinks that he has been "poisoned" with tainted food, may find that he is left with an irritable, gassy bowel and a tendency to diarrhea. In these cases, one suspects that a small-bowel enteritis has not cleared up.

In many cases, nothing is found on examination. Then the physician must be careful not to grasp at diagnostic straws. He must find out if the patient has enough strain, unhappiness, sorrow, or insomnia to account for the situation. *Mild melancholia is rarely recognized by clinicians*, and even borderline insanity is frequently overlooked.—WALTER C. ALVAREZ, M.D., in *Minn. Med.*, Dec., 1940.

### Correction

**O**N PAGE 53 of the February issue of CLINICAL MEDICINE, the cut of the double syringe was reversed by the printers. This fact should be obvious from the text, but for the sake of perfect clarity this note is published.—ED.

### The Electron Microscope

**T**HE development of the compound microscope, using visible light rays, or even ultraviolet rays, is strictly limited by the wavelength of the light used. Such an instrument can never distinguish between objects less than 0.1 micron ( $1/250,000$  inch) apart.



Courtesy, R.C.A. Mfg. Co., Inc.

It, therefore, appeared that, with the present perfection of our microscopes, we had come to the end of our ability to investigate the indefinitely small, which is the realm of biology, nuclear physics, and physical chemistry.

Fourteen years ago it was demonstrated that the action of a magnetic or electric field of rotational symmetry, on an electron beam, is very much like that of a glass lens on a light beam; and during the past ten years, the new science of *electron optics* has been developed, one of the newest products of which is the *electron microscope*, pictured here.

Since the wavelength of electron beams may be 100,000 times shorter than that of visible light, it is possible to secure a magnification of  $\times 100,000$ , while the useful power of a light microscope is about  $\times 2,000$ . With this new instrument, it should be theoretically possible to observe atoms.

These instruments are now available commercially, and as they reach the stage of mass production, so that their cost can be reduced and their use become fairly general, we shall enter upon the exploration of a wholly new field of science.

### Hypothyroidism in Children

**T**HE rate of growth in hypothyroidism is *always stunted* in children, if the condition has existed long enough or began the early years of active growth.

Thyroid deficiency always causes a *delay in the appearance of ossification* of the cartilaginous centers, and treatment with thyroid extract accelerates the rate of ossification.

The *eruption of teeth is always delayed*, and the teeth which are formed during the period of thyroid deficiency are defective in structure and undergo early caries.

*X-Ray studies* show a stippled, porous, or fragmented appearance at the sites of bony ossification (cartilages of epiphyses and round bones).

*Brain development.* When thyroid deficiency occurs in the early years of life, *brain development is delayed* and, if not treated, permanent damage may result. If hypothyroidism does not occur until the later years of childhood, there may be no defect in brain development, even though the patient may be mentally sluggish and slow in response.

*Physical inactivity* and mental sluggishness are shown, to some degree, by all patients with hypothyroidism. The *torpor and slow mental reactions* characteristic of hypothyroid children are distinct from retarded or defective development of the brain and disappear rapidly on treatment.

A *pale, grayish color of the cheeks and lips*, and *circulatory mottling of the skin*, are evidences of decreased peripheral circulation, and are encountered so regularly that one should hesitate to make a diagnosis of hypothyroidism in a child with bright, ruddy cheeks and lips. Basal metabolic rates are unreliable in children.—L. WILKINS, M.D., in *Penn. Med. J.*, Jan., 1941.

### Examination of the Knee

TO EXAMINE a patient's knee, he is seated, and the examiner sits, at right angle to the patient, on a stool of such height that the thigh rests comfortably across his knee. The knee jerk should be tested first.

Redness, heat, and swelling are looked for next. A localized area of heat, with or without redness and with little swelling, is investigated first by passively extending the knee. If full extension can be obtained, there is probably no internal derangement of the joint. If there is resistance to full extension, or if the knee springs back into flexion, there is either an inflammatory condition, such as *arthritis*, *synovitis*, or *bursitis*, or injury to a cartilage. Slight resistance, comparable to that of an elastic tissue, may be encountered in shortening of the gastrocnemius muscle.

In the normal knee, there is no lateral movement with the joint in full extension. If present, it is due to ligamentous relaxation, and *faulty metabolic processes* should be suspected (thyroid dysfunction). The lateral ligaments may have weakened due to a disease such as syphilis (Charcot's joint), or from injury. With the knee flexed to 135°, test lateral movements. In this position, these ligaments are relaxed and pain on stretching indicates a sprain.

Bone injuries to the condyles or tuberosities will cause pain when the knee, in this semiflexed position, is so moved as to make pressure on the point of fracture. If an acute injury to a lateral ligament is present, pain is elicited by pressure over its bony attachment. Pain on pressure over a semilunar cartilage usually indicates injury to that cartilage. Palpation of the entire knee may reveal a latent condition, such as bursitis or a cyst, and palpation of the tibial tuberosity will always reveal Osgood-Schlatter's disease.—J. J. NUTT, M.D., in *Ann. Int. Med.*, Dec., 1940.

### Sodium Sulfapyridine Intramuscularly

No local irritation or tumefaction has been observed after many deep intramuscular injections of sulfapyridine. Gastrointestinal reactions are almost entirely avoided, nausea does not occur, and vomiting is rare.

A 33 1/3-percent solution of sulfapyridine in sterile water is used, and the injection is given deep into the gluteal or thigh muscles. The solution must not be injected in the subcutaneous tissues (air may be injected through the needle to clear it, before it is withdrawn).

One (1) cc. of solution contains 0.33 Gm. (5 gr.) of the drug. From 6 to 10 cc. are given as the first injection, and 3 cc. every four hours until the temperature has been normal for 24 hours. The dose is then reduced one-half and continued for the next five days.—L. T. HALL, M.D., in *Nebr. S. Med. J.*, Nov., 1940.

### Histamine Iontophoresis

HISTAMINE iontophoresis is efficient in myositis, tenosynovitis, bursitis, sprains, neuralgia, and neuritis. Traumatic arthritis is treated with marked success.

In rheumatoid and osteo-arthritis, symptoms due to disturbed peripheral circulation, especially in the

hands and feet, are favorably influenced. The larger joints do not respond so well. The percentage of recurrences is high. The transitory amelioration of pain and stiffness, and the increased motion, however, may be taken advantage of to carry through a long-range program of orthopedic, dietary, or medical treatment.

In peripheral circulatory diseases, histamine iontophoresis exerts a definite beneficial effect and should be employed, together with other types of treatment. The powerful effect of histamine on the capillaries and arterioles permits the application of very high dilutions, short duration, and very weak amperage. This, in turn, makes the treatment economical, simple, and flexible, avoids untoward general reactions, and permits frequent repetition and prolonged continuation and home treatment.—DAVID H. KLING, M.D., in *Med. Rec.*, Dec. 4, 1940.

### Eye Signs of Anesthesia

THE eye signs of inhalation anesthesia are of vast importance to every physician who administers an anesthetic.

*Stage of mild anesthesia:* The pupils tend to constrict at the onset of mild anesthesia; the eyeballs move actively all over the orbit; when the anesthesia becomes deeper, the lids do not resist opening, and close slowly and incompletely; touching the border of the lid results in twitching of the lids (the direct palpebral reflex test).

*Stage of surgical anesthesia:* This stage is ideal for most important surgical procedures, for vital functions are adequately maintained, while muscles are relaxed. The mid-point pupil is attained and kept, unless insufficient anesthesia causes a return to light anesthesia, as indicated by pin-point pupils, or deep anesthesia causes the pupils to dilate widely, as the stage of toxicity is approached. When the eyeballs remain fixed, usually in the median line, the patient is ideally relaxed. At this stage there is no eyelid resistance to movement, and the pupil contracts when light is flashed upon the eye.

*Danger or toxicity stage:* Death is imminent when anesthesia is pushed too deeply. *Danger signs:* The pupils dilate rapidly, the lids do not close when the cornea is touched with a sterile cotton applicator, and the eye loses its glossy appearance. It is safest to keep the patient in the third stage of surgical anesthesia.—M. B. GORDON, M.D., in *E.E.N.&T.M.*, Dec., 1940.

### The Treatment of Adherent Placenta

TRUE adherent placenta (placenta accreta) must not be confused with the common placental retention seen in hour-glass constriction of the uterus or from failure of the normal separating mechanism of a healthy placenta in a normal uterus.

*Treatment:* Early hysterectomy, followed by blood transfusion, was not followed by a single death in all 11 cases where no attempt at vaginal removal was made. There was a 20 percent mortality rate in those cases which were operated upon after partial manual extraction had been employed; and 60 percent if manual extraction or curettage was employed without hysterectomy.—C. E. BOSS-HARDT, M.D., in *South. Med. J.*, Nov., 1940.

# Diagnostic Pointers



## Anterior Poliomyelitis

● The "spinal sign" is of great diagnostic value in poliomyelitis. The child is asked or bribed to try to "kiss his knee." In positive cases, flexion is prevented by pain, even when assisted by passive movement; and if left unsupported, with his legs dangling over the bedside, the child leans back on his arms, to prevent flexion of the spine (Amoss' tripod sign). Resistance is encountered on passive flexion of the spine also.—JOHN DE SWIET, M.R.C.P., in *Med. World*, (Lond.), Dec. 13, 1940.

## Anorexia and Hypothyroidism

● Hypothyroidism often causes anorexia, which is cured by the use of thyroid extract.

Normal appetite, however, may be present in hypothyroidism. When the appetite is defective and the caloric intake is inadequate, the essential treatment is (1) a sufficient food intake, and (2) thyroid extract.—M. GOLOB, M.D., in *Rev. Gastroent.*, Nov.-Dec., 1940.

## Psychoneuroses

● Chronic brucellosis (undulant fever) may cause psychoneurotic symptoms to persist over a period of years. Treatments with brucella vaccine are needed.—WARD DARLEY, M.D., in *J.A.M.A.*, Dec. 14, 1940.

## Rectal Bleeding in Children

● Bleeding from the rectum in children is usually due to an adenoma of the rectum or colon. It may readily be diagnosed by the use of a proctoscope or sigmoidoscope. *Treatment*: Excision by crushing of the base or by ligature, and excision. Hemorrhoids in children are so rare as to be medical curiosities.—F. C. SMITH, in *Med. World*, May, 1940.

## Diagnostic Signs on the Hands

● A slight, painless, lateral deformity at the distal interphalangeal joint, with perhaps an insignificant nodule, will disclose hypertrophic arthritis; a slight, spindle-shaped enlargement of the second interphalangeal joint, noted by the patient only as a stiff, slightly aching joint, will give warning of atrophic (rheumatoid or severe) arthritis. The nails may show marked unevenness, ridges, or thickening, and glandular dysfunction, avitaminosis, or skin infection must be kept in mind.

A cold, damp hand is usually indicative of a faulty sympathetic system. A warm hand should make one think of hyperthyroidism.—J. J. NUTT, M.D., in *Ann. Int. Med.*, Dec., 1940.

## X-Ray Diagnosis of Bowel Obstruction

● The x-ray diagnosis of small-bowel obstruction depends on the appearance of several greatly distended coils of small bowel, whether serpent-like in arrangement, as is seen in the majority of cases, or forming the typical "ladder" pattern (one loop above another). The older opinion that the demonstration of any appreciable amount of gas in the small bowel was evidence of obstruction is untenable, as small segments are dilated in cases of urinary calculi, severe urinary tract infection, biliary colic, morphinization, pneumonia, and traumatic injury of the vertebral column or pelvis. H. C. OCHSNER, M.D., in *Am. J. Dig. Dis.*, Jan., 1941.

## Tear Duct Infection

● Painless swelling of the tear canal may be due to Streptothrix infection. Cure is obtained in two or three days by syringing with a weak potassium iodide solution.—E.E.N.&T. *Monthly*, Jan. 1941.

## "Rheumatic Pains" and Hyperparathyroidism

● "Rheumatic pains" in the extremities and back, followed by fatigue, polyuria, and severe headache, are the earliest symptoms of hyperparathyroidism. The diagnosis is confirmed by palpating a small nodule in the thyroid area or by finding the blood calcium above 12 mg. per 100 cc. of serum.—I. E. SIRIS, M.D., in *N.Y.S.J.M.*, Dec. 15, 1940.

## Peptic Ulcer in the Aged

● It is generally believed that gastric and duodenal ulcer rarely occur in the aged, and if they do it is on the basis of arterio-sclerotic gastric vessels. Ulcer is more frequent as an acute lesion than is generally recognized, and is often present as a condition secondary to diseases of the liver, kidney, heart, or prostate. A considerable number of perforations occur.—J. MEYERS, M.D., in *J.A.M.A.*, Dec. 14, 1940.

## Plummer-Vinson Syndrome

● The association of secondary anemia; a smooth, red, and painful tongue; "spoon" finger nails; and numbness and tingling of the extremities should suggest the Plummer-Vinson syndrome. The appearance of painful swallowing and achlorhydria confirm the diagnosis. *Treatment*: Iron therapy and hydrochloric acid; esophagoscopy and dilatation, if needed for dysphagia.—J. D. KERNAN, M.D., in *J.A.M.A.*, Dec. 14, 1940.



# Thumbnail Therapeutics

## Sex Hormones in Migraine

● In a series of 11 cases of migraine (10 women and 1 man), treated with male sex hormone and estrogen, the patients obtained some relief. The women who were menstruating regularly seemed to benefit most from male sex hormone, while those in whom the headaches came on following the menopause reacted much better to estrogenic substance. These menopausal cases showed a complete disappearance of the headaches while under treatment, and for several months after the stopping of it. It is believed that small doses would suffice for maintenance.—B. BUHLER, M.D., in *Deutsche Med. Wchnschr.*, Dec. 1, 1939.

## Sulfapyridine in Lung Abscesses

● Sulfapyridine will cure a certain number of lung abscesses rapidly. Two (2) Gm. (30 grains) are given as an initial dose, followed by a similar dose in 4 hours, and then 1 Gm. (15 gr.) every 4 hours for two days. If vomiting persists following use of the drug, it should be given intravenously in doses of from 2 to 3 Gm. daily.—*Med. World*, (Lond.), Nov. 8, 1940.

[One case of lung abscess, seen recently, cleared up, on sulfapyridine alone, in a week, and the patient was back at work in four weeks.—R.L.G.]

## Herpes Zoster

● Herpes zoster should be treated by the intravenous injection of sodium iodide, 2 grams, in 20 cc. of distilled water, on the first, second, fourth, and seventh days of the disease. One or two subcutaneous injections of 0.5 cc. of pituitrin, together with vitamin B injections, are helpful.—*E. E. N. & T. Month.*, Dec., 1940.

## Beriberi Heart

● "Beriberi heart," due to thiamin (vitamin B<sub>1</sub>) deficiency, has been found present in one out of 160 consecutive medical cases admitted to a large charity hospital. Early cases and those with no permanent anatomic changes in the heart respond well to rest in bed and hypodermic injections of thiamin, up to 30 mg., three times a day.—S. WEISS, M.D., in *J.A.M.A.*, Sept. 7, 1940.

## Keratitis and Riboflavin

● Avoidance of light (photophobia), dimness of vision, and actual impairment of visual acuity, due to keratitis, are frequently cured by riboflavin (vitamin B<sub>2</sub>).—*E.E.N.&T. Monthly*, Jan., 1941.

## Single-Dose Sulfapyridine Therapy in Pneumonia

● A single dose of sulfapyridine was given, as the sole method of specific treatment, to a group of 41 children with pneumonia. The dose was 2 grains per pound (0.3 Gm. per kg.) of body weight, as a suspension in milk or a formula, the maximal dose being 4 Gm. (60 gr.). A similar group of patients treated with the multiple-dose method received doses of from 0.8 to 2 Gm. daily; the mortality rate was twice as high. The single-dose method simplifies the treatment, decreases toxic effects, interferes less with the child's rest and sleep, and is less fatiguing to the nursing staff.—L. PLATT, M.D., in *Am. J. Dis. Children*, Nov., 1940.

## Infrared Heating over Taped Surfaces

● White adhesive tape interferes with the amount of heat that will reach the skin. When infrared heat is to be applied to a taped area, such as the back, the surface should be covered with a dull-black cloth, before the lamp is used. A black cotton stocking may be used over a taped ankle.—BEN L. BOYNTON, M.D., in *Arch. Phys. Therapy*, Dec., 1940.

## Delirium Tremens

● Vitamin deficiency appears to be present in all chronic alcoholic patients, and to be the cause of delirium tremens. Intravenous injections of 50 mg. of thiamin chloride, daily, were followed by prompt recovery, even when 4 ounces of whiskey were also given every 4 hours.—H. E. KIENE, M.D., *et al*, in *J.A.M.A.*, June 1, 1940.

## Simple Treatment of Poisoning

● The treatment of poisoning should include: (1) washing out the stomach with soapsuds (especially for carbolic acid poisoning), salt water, baking soda solution, dishwater, or milk; (2) epsom salts for almost any poison, or milk and eggs beaten together for corrosive poisons; and (3) stimulants, such as strong coffee, every half hour, and external heat. Artificial respiration should be given if breathing stops, as may occur with sleep-producing drugs. *Food poisoning may be treated in the same manner.*—J. S. LUNDY, M.D., in *Proc. Staff Meet. Mayo Clin.*, Nov. 13, 1940.

## Soap in Ocular Infections

● Washing out the eye with soap and water solution, and following with the instillation of a pure soap lather as a "buffer," is a harmless and effective way of treating acute infections of the eye. It produces considerable reaction, which is harmless and soon passes away.—*E. E. N. & T. Month.*, Dec., 1940.





## THE DOCTOR'S STUDY

*With good books, the point is not to see how many you can get through, but rather how many can get through you.*—MORTIMER J. ADLER.

### Asthma and the General Practitioner

Adam

**ASTHMA AND THE GENERAL PRACTITIONER.** By JAMES ADAM, M.A., M.D., F.R.F.P.S.G., Surgeon-in-Charge, Asthma Clinic, Stophill Hospital, Glasgow, Surgeon for Diseases of Ear, Nose and Throat, Lanarkshire, County Council Hospitals; Hon. Surgeon for same, Glasgow Royal Infirmary and Glasgow Corporation Hospitals. Baltimore: The Williams and Wilkins Company, 1939. Price, \$2.00.

**TWO** men, and their students and followers, have been largely, if not wholly, responsible for demonstrating the falsity of the dictum (still too widely accepted), "Once an asthmatic, always an asthmatic." These men are the late James Adam, of Glasgow, and Burton Haseltine, of Chicago. Haseltine has, unfortunately, never written a book on the subject, while Adam wrote several, of which this is the most practical for general clinicians.

The basic thesis of this volume (fully documented and supported by ample clinical evidence) is: Asthma is a systemic disease due to "dirty blood" which results from an unhygienic way of life, one of the symptoms being bronchospasm or wheeze. It can, therefore, be prevented and cured (not merely relieved) by cleaning the blood and adopting a rational way of life; and the management of such cases can, in most instances, be carried out by an intelligent, informed, and patient general clinician.

In order to understand and appreciate the chapter on treatment, which makes up nearly half of this small monograph, the preceding chapters must first be perused, carefully; and this is no hard task, for the entire book can be read in three hours or so, and is better reading than most novels, as Adam's style is brisk, original, often humorous, and always thought-provoking, and he writes with the authority of personal knowledge.

Any family physician who will study this work and put its principles and precepts in daily use, can increase his professional prestige and his income to an extent which he would hardly believe until he has tried it.

This is a "must" book for all general clinicians, and its modest price (ridiculous in comparison with its worth) puts it within the reach of all.

### Diseases of the Vulva

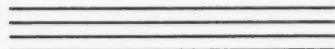
Hunt

**DISEASES AFFECTING THE VULVA.** By ELIZABETH HUNT, B.A., M.D., Ch.B. (Liverpool), Honorary Physician, Skin Department, South London Hospital for Women, etc., 36 Illustrations; 18 Colored Plates. St. Louis: The C. V. Mosby Company, 1930. Price, \$4.00

**THIS** monograph is unusual, inasmuch as it is not filled solely with the author's ideas; is not concerned with rare cases only; and presents good clinical descriptions, together with excellent colored plates.

## New Books

Any book reviewed in these columns will be procured for our readers if the order, addressed to **CLINICAL MEDICINE**, Waukegan, Ill., is accompanied by a check for the published price of the book.



### Heart Disease

Christian

**THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE HEART.** By HENRY A. CHRISTIAN, M.D., D.Sc. (Hon.), LL.D., F.A.C.P., Hersey Professor of the Theory and Practice of Physic, Emeritus, Harvard University; Physician-in-Chief, Emeritus, Peter Bent Brigham Hospital, Boston, Massachusetts. London, New York, and Toronto: Oxford University Press, 1940. Price, \$7.00.

**THIS** monograph was written with the needs of the general practitioner in mind, and, unlike other attempts at this type of thing, is successful in presenting usable information. Diagnosis and treatment are stressed; etiology and pathology are briefly reviewed.

Important signs and symptoms of the various types of heart disease are given and elucidated clearly. This book will be decidedly helpful to the clinician.

### Diseases of the Nervous System

Brain

**DISEASES OF THE NERVOUS SYSTEM.** By W. RUSSELL BRAIN, M.A., D.M. (Oxon.) F.R.C.P. (Lond.), Physician with Charge of Out-Patients to the London Hospital; Physician to the Maida Vale Hospital for Nervous Diseases; Neurologist to the Infant's Hospital, etc. Second Edition. London: Oxford University Press, Humphrey Milford, 1940. Price, \$0.25.

**THIS** text has always emphasized the anatomy and function of the nervous system, in order to make neurologic diagnosis more logical and interesting. In this edition a new chapter has been added on the psychological manifestations of organic nervous disease, a topic usually omitted from most neurologic texts, which treat nervous system lesions as entities entirely separate from the patient's reaction to them.

Recent advances are discussed: Vitamin deficiency in nervous disease, newly discovered neurotropic viruses, electroencephalography, chemistry of muscle, and humoral factors in the transmission of nerve impulses at the myoneuronal junction. The section on thiamin (vitamin B<sub>1</sub>) is brief, but complete.

This book is almost an anomaly, in that it is an interesting neurologic text.